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PHLEBITIS *

By A. Dickson Wright, M.S. Lond., F.R.C.S. Eng.
SUPERNUMERARY ASSISTANT SURGEON, ST. MARY'S HOSPITAL, LONDON

Phlebitis is almost entirely a disease of the lower extremities, where the veins are subjected to higher pressures and stagnation of the venous blood occurs from the effect of gravity. In varicose veins, the stagnation and pressure are more marked and phlebitis consequently more frequent.

Rest in bed increases the stagnation in the veins of the leg, because of the cessation, to a great extent, of the muscular contractions, which are so important an aid to the venous flow. Frequently, as in pneumonia, the sitting position maintained for a considerable period of time naturally increases the pressure in the veins of the legs. If, in addition, the patient is obese or pregnant an abdominal "dewlap" hangs down and presses upon the femoral veins in Scarpa's triangle (Fig. 1). In the dorsal recumbent position, the venous flow is also interfered with by the pressure in the gluteal region, causing the muscles to be squeezed into the pelvic foramina, and thus obstruct the gluteal veins. It can be realised how an air ring would be more liable to cause venous stagnation in this way (Fig. 2). The femoral vein in the front of the leg is safe from pressure, but not so with the posterior tibial pressed against the intermembrane by the calf muscles (Fig. 3). The osseous "donkey" pillow under the knee presses upon the popliteal veins and is definitely a harmful appliance (Fig. 4). Phlebitis of the lower part of the posterior tibial vein is common after operations, and I have often observed a connexion between tender indurations in the lower calf and post-operative lung infarcts.

Fig. 1

The abdomen enlarged by pregnancy, tumour, or obesity causes obstruction of the femoral vein in sitting position.

Many Possible Causes

Phlebitis is well known as a decubitus complication in certain conditions :—

(1) The *puerperium* probably provides the largest number of cases. It must be noted that the inflammation and thrombosis may occur in the deep veins, the normal superficial veins, or varicose veins, and may vary in its extent. The title of "milk leg" or phlegmasia alba dolens is often applied rather indiscriminately to all these conditions, a more precise diagnosis is essential both for treatment and prognosis.

(2) *The post-operative period.*—As in the puerperium, there is a greater tendency for the blood to clot intravenously because of the escape of clotting activating substance into the circulation, the result of trauma, and because of the 100–200 per cent. increase of blood-platelets as demonstrated by Howel Evans of Liverpool. The subjects of Cæsarean section and of splenectomy have to run a double risk.

(3) Fractures of the lower limb have to undergo prolonged immobilisation, and always result in considerable venous thrombosis.

(4) Medical cases provide a large quota and an analysis of 100 consecutive cases gave the following percentages : typhoid and paratyphoid 56 per cent., pneumonia 32 per cent., influenza 7 per cent., malaria 3 per cent., gout 1 per cent., and typhus 1 per cent.

In certain other conditions, phlebitis occurs as a complication without the patient being in bed :—

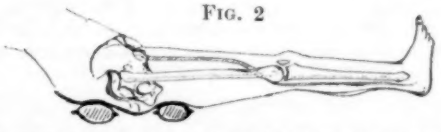
(1) *Pregnancy.*—I have seen a number of cases, mostly in varicose veins. I have recently encountered a case of fatal pulmonary embolism in the eighth month of pregnancy.

(2) *Trauma* to the leg or to a superficial vein frequently causes phlebitis.

(3) *Septic lesions* of the legs, especially insect bites.

(4) *Focal sepsis* in throat, mouth, or nose seems to be frequently connected with phlebitis, and should be looked for in every case which cannot be explained otherwise.

Fig. 2



Indicates how the pressure of an air ring is liable to cause pooling of venous blood.

(5) *Malignant disease* of the stomach.—The association of phlebitis in digestive disturbance is known as Trousseau's sign of malignant disease of the stomach. The tragic story of how Trousseau discovered his own fatal complaint by this sign is well known.

(6) *Thrombo-angiitis obliterans.*—Half the sufferers from this condition develop a painful *superficial* phlebitis of the leg at some time or other, and in many cases it is the first sign of the disease.

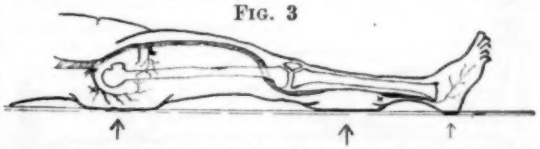
(7) *Thrombo-phlebitis migrans*, a chronic disease associated with phlebitis, occurring at intervals in all parts of the body. There is considerable pyrexia, and a low arterial blood pressure is a frequent association.

After the exhaustion of all possible causes, there still remain a large number of unexplained cases of phlebitis, the majority of which occur in varicose veins, and phlebitis must be looked upon as one of the commonest complications of varicosity.

Prophylaxis

Prophylaxis applies mostly to those cases occurring while the patient is in bed. The patient must not be kept too long in one position, if possible. The sitting position seems to be especially dangerous.

Fig. 3



The pressure on the calf obstructs the posterior tibial vein.

Sleeping on the side at night in post-operative and puerperal cases should be allowed. The air ring should be avoided as far as possible, and the knee-donkey abolished entirely. Deep breathing and other exercises should be encouraged as suggested by Eugene Pool and L. R. Braithwaite. Waltman Walters, at the Mayo Clinic, recommends a high caloric diet and enough thyroid extract to produce temporary hyperthyroidism after operations. The trauma of the tourniquet seems to produce some cases, and the use of the pneumatic tourniquet will prevent these. The precaution of bandaging the legs firmly with Elastoplast bandages is of great value in patients who, having varicose veins, have to undergo an abdominal or other operation. The veins are kept obliterated by the pressure, and phlebitis in the varicose veins seems to be completely guarded against. Sometimes

* An address delivered at a post-graduate course at St. Mary's Hospital.

the veins can be dealt with by injection as a preliminary to any deliberate operation, which should be done a month after the treatment of the veins. The best arrangement for the sitting patient is shown in Fig. 5. The patient sits in a bed arm-chair. The arms prevent slipping and also take up about 20 per cent. of the patient's weight. The backs of the thighs are supported by a wedge-pillow which is kept from slipping by a prolongation, upon which the

FIG. 4

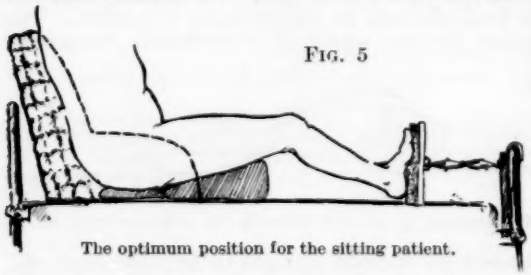
Diagram to show how the "donkey" pillow, under the knee, presses on the popliteal blood-vessels.

patient sits. The popliteal and posterior tibial veins are thus saved from pressure. The soles of the feet rest upon a sponge rubber pad on a foot-rest adjustable on the well-known trellis system used for telephones. A thoroughly comfortable patient is secured by this arrangement, and one much less likely to develop phlebitis from pressure upon veins.

Treatment

Treatment of deep phlebitis.—When phlebitis is diagnosed in the posterior tibial vein, a firm elastoplast bandage to the knee will help to anchor the clot and prevent extension of the process up to the femoral vein. When the femoral vein is thrombosed, there is nothing to be done except to keep the patient horizontal, as the raising of the legs might predispose to embolism. Effortless action of the bowels is secured by paraffin purgatives and occasionally glycerin suppositories. The rubber bed-pan is used, with the patient lying down, and on no account must enemas or the sitting position for defæcation be allowed. After 14–21 days the swelling will start to subside, and the application of frequent bandages from foot to groin will hasten the return of the leg to normal proportions. When the swelling is all gone,

FIG. 5



The optimum position for the sitting patient.

the patient is allowed up with an elastoplast bandage on reaching well up the thigh. As the tendency to swell diminishes, the bandage is reduced in extent and finally ends below the knee. A change to Unna's stocking can be made later still, and finally an elastic bandage or stocking is worn. It is absolutely essential that all œdema should be controlled to lessen the weight of the leg and, more important, to help in the opening up of the collateral circulation. My experience with severe ulceration and eczema occurring from 7 to 25 years after femoral thrombosis convinces me that many of these cases must wear supports for ever. Future childbearing is best avoided after a white leg if possible, and in one case I recommended emptying of the uterus and sterilisation in a severe bilateral case the result of a previous pregnancy.

Treatment of superficial phlebitis is a different problem because the clot can be prevented from travelling upwards by a rubber pad placed at its upper end (Fig. 7), and the inflamed vein firmly compressed by a tight elastoplast bandage below the pad. This tight bandaging seems a very painful process to the onlooker, but the rapid disappearance of the pain is most gratifying to the patient. The tight bandage expels the inflammatory exudates around and in the vein, compresses the clot and hastens its organisation. The patient is kept ambulant, even when there is a temperature, and this is generally gone in 48 hours by this method. When phlebitis occurs in varicose veins, keeping the patient up lessens the risk of embolism, because the current of blood is downwards in these veins. Moreover, the tortuosity and uneven calibre of the clots is a further safeguard against dislodgment (Fig. 6). Putting the patient to bed with an unsupported leg may lead to extension of thrombosis to the deep veins, with great risk of embolism. The bandage is kept on from two to six weeks, provided it stays in position and keeps tight. If, on its removal, some of the thrombosed veins are found to fluctuate, a stout needle should be inserted and the contents withdrawn and bandage reapplied. This hastens resolution and the contents can be examined bacteriologically, so as to make an early diagnosis should suppuration be developing.

FIG. 6

Shows how the irregular shape of the thrombi prevents dislodgment and also that the vein above the clot is of narrow calibre.

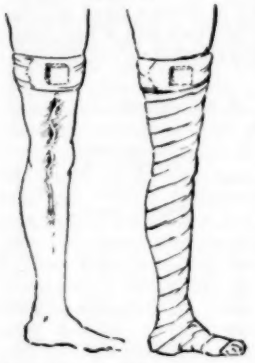
After six weeks of the bandage the venous indurations will be found to be practically gone and the attack of phlebitis a boon to the patient, in that the veins are obliterated and will not recanalise because of the pressure to which they have been subjected. I have treated many cases who have experienced in previous attacks the routine of six weeks in bed with belladonna or ichthyol locally, and I have not found one patient who preferred this latter method of treatment. There is no place for proximal ligation of veins in simple phlebitis of superficial veins as there is in suppurative phlebitis. I have found that the most certain way of producing phlebitis in a superficial vein of the leg is to ligature it. Proximal ligation only produces a fresh thrombosis, and if done close to the saphenous opening, the clot above the ligature may extend to the femoral vein.

I have been unable to comprehend the scientific basis of the elaborate ritual of spa treatment in the management of phlebitis, and cannot understand the value of the various glandular extracts and ferments in the treatment of a purely inflammatory disease. This compression treatment is also of the greatest value when an injection of sclerosing fluid produces an excessive reaction or the dreaded ascending phlebitis. It is also the best treatment when the sloughing of the vein wall occurs or necrosis of the tissues at the point of injection. If the leg is swathed tightly in an elastoplast bandage at the first sign of a necrosis and this is left on for a month or more the slough discharges itself, and the resulting ulcer epithelialises all unknown to the patient, who is thus saved much anxiety.

The condition of *periphlebitis* is often mistaken

for true phlebitis. It occurs only in association with varicose veins and in the lower two-thirds of the leg. It is best described as a non-suppurative cellulitis of the perivenous tissues. It is a very painful condition, and the vein can generally be felt to be patent as it traverses the tender indurated affected area. The treatment is the same as for phlebitis except that the condition is no contra-indication to immediate injection of the varicose veins which should invariably be carried out. The condition of periphlebitis often leads to ulceration, the resulting ulcer being sometimes known as a "phlebitic" ulcer.

FIG. 7



Method of bandaging superficial phlebitis, with rubber pad and elastoplast bandage.

SCLEROSING INJECTIONS

The question of the injection treatment in patients who have suffered from phlebitis is a very vexed one. Firstly, in the case of obliteration of the femoral vein it is said that if you inject the varicose veins which develop many years after the disease you will rob the patient of the only veins that he has left. I have repeatedly found that this is not the case, and have come to the conclusion that these veins constitute an increased embarrassment to the venous return and their blocking by injection reduces instead of increasing the œdema, and helps to stave off the complications which arise from prolonged vascular imbalance in the legs.

Secondly, the occurrence of an attack of phlebitis in varicose veins is regarded by some as an absolute contra-indication to any sclerosing injections; others say that an interval of from one to five years must elapse before any injections are given. It is said that these cases are liable to fatal embolism and acute ascending phlebitis if injected. So it results that most of these patients are allowed to remain in possession of varicose veins which become the seat of constantly recurring attacks of phlebitis with all their attendant pain, anxiety, expense, and risk. I have in a large number of cases ignored the history of recent superficial phlebitis, dealing with the varicose veins by injection, and have had no case of embolism. I have had several cases of excessive inflammatory response from the injection, but this can be very satisfactorily controlled if treatment by firm strapping is instituted.

Summary

(1) Phlebitis is often a decubitus complication and can be, to a certain extent, prevented by attention to certain details. (2) Superficial phlebitis may be the first sign of three diseases: thrombo-angiitis obliterans, cancer of the stomach, and thrombo-phlebitis migrans. (3) Phlebitis is a common complication of varicose veins. (4) The treatment of phlebitis in deep and superficial veins is essentially different. In superficial veins, and especially in varicose veins, the risk of embolism and extension of the phlebitis is reduced by keeping the patient ambulant, and the resolution of the inflammation is hastened by compression. (5) Past femoral thrombosis is not a contra-indication to the injection of obvious varicose veins. (6) Varicose veins, the seat of repeated phlebitic attacks, should be dealt with by injection.

MASKED HYPERTHYROIDISM AS A CAUSE OF HEART DISEASE

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FOR many years it has been recognised that dysfunction of the thyroid gland may give rise to cardiac symptoms and these may be the only manifestation of that disorder. In recent years it has been appreciated that there exists a group of patients with cardiac disease, due to dysthyroidism, though they have not Graves's disease, and may never develop that condition. This group, to which the term "masked hyperthyroidism" has been applied, consists of patients in whom the heart is affected as a result of thyrotoxicosis. They are essentially heart patients and present themselves for examination complaining only of cardiac symptoms. Parkinson and Cookson,[1] from an investigation of the size and shape of the heart in goitre, cite a few cases lacking the classical symptoms of thyrotoxicosis, but with the main symptoms and signs cardiac; they are regarded as belonging to the group of masked hyperthyroidism. The diagnosis is often difficult to make, and at the present time we must be prepared to consider an assemblage of indefinite symptoms and signs. The symptoms point to the heart; the heart always shows some abnormality, and as a rule no other ætiological factor is present to account for the condition.

This investigation was begun as the result of the observation that certain patients, who for long periods had attended out-patient clinics complaining of attacks of palpitation without apparent cause, later and unexpectedly, developed signs of thyrotoxicosis. A search was then instituted for similar cases in which a dysfunction of the thyroid was giving rise to cardiac symptoms in association with minimal signs and symptoms usually associated with thyrotoxicosis. Selected patients have been observed over periods of nine to twelve months, many as in-patients and the remainder periodically as out-patients. Electrocardiograms have been taken at intervals and observations on the heart size have been controlled by orthodiagrams.

An attempt has therefore been made here to describe the cardiac and associated symptoms and signs, and to build up some sort of symptom-complex which may be more easily recognised. The importance of the condition is apparent on account of its relative frequency, its difficulty of diagnosis, and finally its amenability to treatment. For the sake of brevity only a few cases are described in this paper, but in the 15 patients observed the diagnosis has been justified by the results of appropriate medical or surgical treatment, and by the estimation of the basal metabolic rate. It may be mentioned in addition that several patients were seen in whom the cause of symptoms was an associated thyrotoxicosis although another pathological condition was present—e.g., hypertension.

As long ago as 1885 Charcot[2] described cases of the "maladie de basedow, formes frustes" in which one of the triad—tremor, struma, or exophthalmos—was not present. In 1887 Chvostek[3] divided these cases into three groups, one of which he called the monosymptomatic group. Levine and Sturgis[4]

in 1924 described five patients all of whom had been treated for a number of years as primary heart disease. They showed that cardiac symptoms may be the only ones present in thyrotoxicosis, and stated that in the absence of the classical triad the diagnosis must be made on less obvious signs. All their patients were between 38–64 years of age, all complained primarily of cardiac trouble, all were alert, over-active, and with animated facial expression. Again, Levine and Walker [5] in 1929 stressed the fact that the thyroid gland may remain toxic for years without any sign of exophthalmic goitre, and yet affect the heart; and they mentioned that the degree of toxicity of the gland may vary from time to time. The prognosis if treated by iodine, followed later by operation, was said to be good, even when anasarca is present.

Hamburger and Lev [6] in 1930 reported five cases, all in patients past middle life, who were of apathetic appearance in direct contrast with the first series of Levine and Sturgis. Freund and Cooksey [7] noted the difficulty of diagnosing thyroid toxicosis in elderly patients as they rarely show any thyroid enlargement, and they reported five cases, watched for at least 18 months.

PATHOLOGY

The pathological changes in the heart brought about by thyrotoxicosis are the subject of much controversy. The three questions which arise in connexion with this problem are:—

(*a*) Firstly, the question as to whether dysthyroidism produces macroscopic changes in the heart, i.e., increase in size and increase in weight, when all other causes can be excluded. Opposing views are held by various authors. Parkinson and Cookson [1] state that in a series of 43 necropsies in goitre cases, about 50 per cent. showed cardiac hypertrophy, and in their clinical series in which the size of the heart was measured by X ray, 45 per cent. showed some enlargement. The younger patients and those with a shorter duration of symptoms showed no hypertrophy. The average heart weight was greater in those patients with established fibrillation than in those with a normal rhythm.

Hurxthal [8] found hypertrophy to be rare, and when it was present he ascribed it to coexisting cardiovascular disease. Hurxthal, Menard, and Bogan [9] were of the same opinion, and Rösler [10] found no departure from the normal size in the majority of his patients. Again, Lahey [11] expresses the view that when failure occurs in goitre it is due to the effect of thyroid toxæmia on a previously damaged heart. Hermann and F. Wilson [12] studying the ratio of ventricular weight to body-weight in a series of cases found this to be 0·00292, which is normal.

Table I. illustrates the size of the heart in 15 cases, as measured by orthodiagram. The method of measurement used is that of Dietlen, and though it is not put forward as an infallible method, the figures may be quoted.

In considering this table, it will be seen that in only two cases (Nos. 1 and 14) was there notable enlargement: in the former cardiac failure was present, whilst in the latter gross myocardial changes were revealed by electrocardiogram. Of the remaining five patients in whom the heart was enlarged, in three the enlargement was minimal. It must be borne in mind also that the average age of the series was 52 years, and that therefore no comparison can be made with measurements in series of cases of Graves's disease in whom the average age is, as a rule, much lower.

Only one patient died (Case 15), a woman aged 57, who had been the subject of attacks of paroxysmal auricular fibrillation for three years. In this case teleradiograms showed a very slight enlargement and this observation was later confirmed at autopsy, though the weight of the heart was only 9½ oz. Another patient (see Case 2), a woman aged 57, had constant tachycardia of 120 for two and a half years and yet clinically and by X ray showed no enlargement of the heart.

TABLE I.—*Size of the Heart*

Case.	Transverse diameter of		E., P. or A.	Case.	Transverse diameter of		E., P. or A.
	heart.	chest.			heart.	chest.	
	cm.	cm.			cm.	cm.	
1	16·0	22·5	Yes	9	10·5	21·0	No
2	11·0	22·3	No	10	13·3	22·2	Yes
3	12·0	23·0	No	11	10·0	21·0	No
4	12·0	21·5	Yes	12	10·5	23·1	No
5	11·5	21·0	Yes	13	11·4	22·2	No
6	12·2	25·6	No	14	14·0	22·5	Yes
7	11·5	21·1	Yes	15	12·0	21·2	Yes
8	11·8	22·5	No				

E., P. or A.= enlargement, present or absent.

(*b*) The second question is whether microscopic changes are found in the heart in patients who die after showing cardiac symptoms. Again varying opinions are held. Goodall and Rogers [13] state that definite pathological changes can be seen under the microscope and that these changes are those of myocardial degeneration. Goodpasture,[14] Wilson,[15] Johnson,[16] and others also describe actual changes in the muscle-fibres themselves. Willius, Boothby, and Wilson,[17] however, hold the view that the post-mortem evidence is unconvincing and that "at necropsy insufficient evidence is disclosed to ascribe death to cardiac causes . . . ."

(*c*) Finally, if the changes described above do exist, naked-eye or microscopic, are they characteristic of thyroid disease? At the present time the answer to this question must be that they are not.

CARDIAC SYMPTOMS

Palpitation is the most constant symptom; and this is not commonplace palpitation, but is something which even in a sensible patient constitutes a genuine and besetting illness. All in this series complained of such attacks as their main symptom; one had frequent attacks for 11 years, another for 10 years, and the average duration throughout a series of 15 cases studied is 3¾ years. The character of the attack of palpitation varies according to the heart action on which it is based; this may determine the method of onset and cessation, the exciting factors, and the duration of the attack.

The commonest objective basis for the attack is a simple tachycardia with which may be associated extrasystoles. In this type of case the palpitation may occur very frequently, many times in the 24 hours, be gradual in onset and offset, and be precipitated by exertion and emotion and relieved by rest. The presence of extrasystoles with a rapid pulse-rate, when these irregularities might be expected to disappear, is so often observed in these patients and is so unusual in other cardiac conditions that it may be of value in pointing to the thyroid as the ætiological factor. In view of the above observation, the extrasystole may assume a greater significance, but only in a patient suffering from attacks of palpitation in whom no other pathological lesion can be shown as the cause. In other words, it may be said that extrasystoles in association with a rapid pulse-rate in a

patient suffering from attacks of palpitation for which no other cause can be found suggest that the thyroid gland is culpable.

Paroxysmal auricular fibrillation is another arrhythmia commonly associated with the condition and giving rise to the attacks; in these cases the palpitation is not so frequently recurrent as in the simple tachycardia with extrasystoles just described. The attacks are much more sudden in onset and offset, they occur at varying intervals, but seldom daily, and they are independent of exertion or emotion. These attacks may occur for a number of years and later be followed by an established fibrillation. Parkinson and Campbell[18] found 15 per cent. of 200 cases of paroxysmal fibrillation to be goitrous in origin. They further state that "the realization that goitre in almost any of its forms may be the cause of these paroxysms is of great importance." As has been said,[1] in patients without any ocular or nervous disturbances usually associated with thyroid dysfunction, fibrillation may result from the toxic action of a "very small or imperceptible goitre." Levine and Sturgis's[4] five cases all had paroxysmal fibrillation. Since the underlying cause is a toxic effect on the myocardium, it is reasonable to assume that any of the arrhythmias may occur. The type of arrhythmia present in the 15 patients studied was as follows:—

1. Simple tachycardia	4
2. Simple tachycardia with extrasystoles	4
3. Paroxysmal fibrillation	4
4. Ventricular extrasystoles in runs	1
5. Established fibrillation	2

Breathlessness, alone and apart from palpitation, is not a common presenting symptom unless the patient is not seen, or the condition is not recognised, until failure is present.

The association of anginal pain with thyrotoxicosis has been noted. Lev and Hamburger[6] reported cases, and Levine and Walker[5] consider that in these patients coronary artery disease must coexist, and that the added strain on the heart of a thyrotoxicosis renders its blood-supply insufficient and pain results, comparable in its method of production with the pain of angina of effort.

In the 15 cases of masked hyperthyroidism studied, the average age of which was 52 years, five patients gave a history of pain in the chest. In three the description of the pain was characteristic of angina pectoris; it was substernal, dull and heavy in character, and of a minute or two's duration only, and in all three its onset always coincided with the onset of an attack of palpitation.

CARDIAC SIGNS

Cardiac overaction is constantly present. It is usually, but not constantly, accompanied by tachycardia. Its presence may be detected in several ways. The character of the apex impulse is the most useful guide; on palpation it is found to be altered and the first impression which is given immediately is that the heart is abnormal. It is "sudden" in character—i.e., it is a short, quick, rather forcible impulse, and gives the impression that the organ is enlarged, although the impulse may be in the normal situation. This apex impulse is quite unlike the forcible, sustained heave of that in hypertension, but is similar in character to the apex-beat of the normal heart immediately after exertion or emotion.

The examination of patients was always carried out after they had been lying at rest for at least half an hour. In addition the cases were seen and examined often, and were thus accustomed to the routine, so that the element of excitement and exertion were as far as possible eliminated.

This "suddenness" of the apex-beat with the patient at rest, and even when the rate is slow, is of the greatest diagnostic importance. There may, in addition, be a systolic thrill at the apex.

Van den Bergh[19] emphasises the importance of cardiac overaction and considers it a most helpful sign because of its constancy in practically all cases of goitre toxicity.

Auscultation will usually reveal the first sound at the apex to be altered in character. It is louder, shorter, and slightly higher pitched than normal—it may be a little "blurred" so that a presystolic murmur is simulated. A short systolic murmur may be present; this murmur being oftenest maximal in the pulmonary area, where the second sound is often accentuated. Extrasystoles are commonly heard, sometimes in runs, or they may be so frequent as to render the rhythm most irregular.

Electrocardiographic examination, apart from recording the type of arrhythmia, has not proved of great help in diagnosis; occasionally the size of the P wave has been increased and has equalled that of the T wave, especially in lead II.

Radiography of the heart has proved of value. On looking at the heart as a whole, it is usually seen to be little or not at all enlarged and smaller than the clinical examination would lead one to expect. The next feature to be noted is that the organ is overacting; pulsation is much increased. The extension of the beat is seen to be increased and is greater than that seen in a normal heart after exercise. The pulmonary arc may be fuller than normal and thus produce a straight left border to the heart shadow; pulsation in the pulmonary arc may be very much increased; the shadow of the superior vena cava may appear prominently.

Finally, on turning the patient into the first oblique position, the straight posterior border with no enlargement of the left auricle is in striking contrast to the shadow seen in mitral stenosis, from which condition masked hyperthyroidism has often to be distinguished.

As the condition occurs most often in older people, the typical "thyroid heart" is less commonly seen, and associated aortic atheroma or slighter grades of raised blood pressure may modify the picture.

EXAMINATION OF THE THYROID GLAND

When it is known that a cardiac abnormality exists, and when, from the cardiac symptoms or signs, attention is directed to the thyroid, examination of the gland will sometimes show the following. There may be no enlargement of the gland, and this may be so in a thin person in whom any enlargement, with the exception of a retrosternal one, would be easily visible. In distinction from this group, there exists a group of individuals with short fat necks in whom it is debatable whether the gland is increased in size or not. There may be no increase in the size of the gland, but the consistency appears to be altered, so that the gland is very firm on palpation. This hardening of the gland may be unilateral. The gland may contain one or more small hard nodules, which are so significant though they may not have been considered as the cause of the cardiac condition.

The size of the thyroid gland in 15 patients under observation was as follows:—

Group 1.—No visible enlargement	10
„ 2.—Slight diffuse enlargement	1
„ 3.—Moderate diffuse enlargement	1
„ 4.—Visible nodule in the gland	3

In group 2 the case did not show any enlargement of the gland until ten years after the onset of the symptoms, although she was repeatedly

examined with the possibility of thyrotoxicosis in mind.

ASSOCIATED SYMPTOMS AND SIGNS

Tremor is present in the majority. In this series all had a tremor of the fingers. A fine tremor only is of value as a sign of masked hyperthyroidism, as in the type of patient in which the condition is most commonly found, an elderly female, a coarse tremor can be of no diagnostic importance. Exophthalmos, on the other hand, is rarely present; in this series none of the patients showed it. In two cases a slightly "staring" expression was noted. The presence of von Graefe's sign without exophthalmos was seen.

The state of nutrition of the patient.—An interesting fact about the condition is the slow loss of weight which the patients experience. Most of them do lose weight at some period, but this loss is rarely noted by the patient herself, and I have never had the information volunteered in the history. Loss of weight in bed with appetite unimpaired may be of diagnostic value. Some of the patients studied are well above average weight for their height and some are obese. A few have not lost weight at all.

It will be seen from the foregoing description that patients actually suffering from thyrotoxic action on the heart may have no enlargement of the gland and no exophthalmos, may be fat and apathetic, and may lose weight very slowly or not at all.

Less obtrusive symptoms and signs.—It is, then, necessary to make a search for less obtrusive signs and symptoms, which if found to be present, point to the thyroid gland as the primary factor. Most of such signs or symptoms are elusive and are valueless singly, but if several are present together, in association with the cardiac signs, they may be of great value.

Flushing and moistness of the skin is often apparent. This flushing of the skin may give rise to a "salmon hue" mentioned by Levine and Walker [5] which, though difficult to describe, is often present and is of use as a diagnostic sign. Pigmentation of the skin, a light brownish patching occurring round the base of the neck and on the shoulders is described; it was seen in three patients. It is associated with a feeling of warmth, which is almost always present, and which is often mentioned by the patient herself; actual sweating attacks are not so commonly present. Unexplained attacks of diarrhœa are suggestive. Increased nervousness, and in particular a quickness of movement and a "fidgetiness," should not be overlooked. Premature greyness of the hair, lassitude, vomiting attacks, and sleeplessness all occur and should be noted. The general impression given by the patient is very important from the diagnostic standpoint.

THE BASAL METABOLIC RATE

The presence of a raised basal metabolic rate is of great value in confirming the diagnosis of masked hyperthyroidism; but since the toxicosis is often of very long duration and low grade, the high reading seen in frank exophthalmic goitre are not to be expected, and indeed were not seen, in this short series of patients. It must be borne in mind that in certain healthy individuals the rate is subnormal, and should such a patient develop a low grade of thyroid toxicity, metabolic rate estimation may not be a true indication of the amount of that toxicity. Again, it seems reasonable to suppose that the toxicity of the gland may vary from time to time and that one or more estimations of the rate may happen to be taken at times when the toxicity is low.

Morris [20 21] describes seven cases, all with a normal or subnormal metabolic rate, and all of which improved after thyroidectomy in the same way as did those with a raised rate. He states that operation either raises the rate when it is subnormal, or if it is normal leaves it unchanged.

Waters and Williams,[22] in recording a series of cases of menorrhagia due to hypothyroidism, mention three cases in which the rate was found to be normal, but in which there were other signs of thyroid deficiency which were relieved by the administration of gland extract. They emphasise that alterations in the metabolic rate should be accepted as only one of the signs, and not the essential criterion of a functional change in the gland.

Of the patients whom I have studied, the majority have shown a raised metabolic rate, but it may be mentioned that some had a normal or only very slightly elevated rate, though the symptoms appeared to be comparable with those in whom the rate was raised. At the present time, however, there is not sufficient evidence to form any definite opinion in regard to this problem, and further work in regard to it is in progress.

THE COURSE OF THE DISEASE

It seems possible to divide the cases into two groups in regard to the course taken by the disease.

(1) In the first group, the symptoms complained of—palpitation, sweats, and weakness—have been constantly present, but have not varied much in intensity, and apart from increasing weakness, the patient's state has been unaltered for long periods of time. A good example of this group is Case 2.

CASE 2.—Mrs. A., a woman aged 59, was admitted to hospital in August, 1931, complaining of palpitation and shortness of breath. The palpitation had been present constantly for two and a half years and during this period she had been in bed the greater part of the time, and had never been out of her house. The slight stimulus of getting out of bed accentuated the rate and this took several hours and often days before it settled down again. She had gradually lost weight and become weaker. Her skin was always moist, and she said she had become more nervous. There was no history of rheumatic or spirochætal infection.

Examination.—A thin woman, flushed moist skin, apathetic in appearance. Fine tremor of the fingers, no trace of exophthalmos or of enlargement of the thyroid, measurement around the base of the neck was 13 in., but the gland, though not at all enlarged, was unusually firm in consistency. Blood pressure 160/95. X ray showed a heart not enlarged, aortic arch slightly dense, and pulmonary arc slightly full. The apex-beat was "sudden" in the fifth space, there was a systolic murmur at the apex and base, but no other abnormality. When first seen the rate was 150, regular. She was given Lugol's iodine for 14 days and the rate fell to 100–110. The iodine was stopped and it rose again to 120. Eight days later iodine was again given, but no effect on the rate was noted. After a further 13 weeks in hospital the rate remained constant at 120, with occasional rises to 140–150 on exertion. Estimation of the basal metabolic rate at the end of this period was +37. Weight on admission was 7 st. 9 lb., 17 weeks later it was 7 st. 8 lb.

Here the thyroid was not enlarged at all, there was no exophthalmos, and only a fine tremor on which to suspect the thyroid as the causative factor. The condition was quite unaltered after 17 weeks rest in bed in hospital.

Exhibition of iodine at first had an effect on the rate, but later failed to do so. All other treatment had failed. The appearance of the patient was not in any way suggestive of hyperthyroidism and her only symptoms were cardiac. The condition, as mentioned above, had been present for two and a half years. On March 5th, 1932, the operation of partial thyroidectomy was performed. The patient recovered well from the operation, and ten days later the pulse had fallen to 80; it had never previously been at this level during the three years in which she had been under observation.

In September, 1932, five months after operation, she was perfectly well. Her tremor and nervousness had disappeared, the pulse had remained at an average level of 80, and she had gained 1 st. 8 lb. in weight. Her basal metabolic rate on Sept. 16th, 1932, had fallen to −8.

This case illustrates the failure of rest in bed to relieve the symptoms. This was true of all the

patients seen. It also illustrates very well the "refractory" period which the patients show to iodine medication. The absence of cardiac enlargement after long-continued tachycardia is also notable.

(2) In the second group may be placed patients in whom the symptoms are recurrent and intermittent; thus frequent attacks of palpitation are complained of and these have been occurring over a period of months or years; into this group fall the majority of the cases observed. The intensity of the symptoms varies, and this is perhaps properly explained by variations in the toxicity of the gland. Thus the attacks of palpitation may occur at frequent intervals for a period of six or seven months, may then gradually become less frequent, cease altogether for a like period, and then start again.

The following case is a good example of this second group :—

CASE 13.—Mrs. B., a married woman aged 47, has attended the out-patient department of the National Heart Hospital since May, 1929. She complains of palpitation coming on in attacks which start quite suddenly, often in bed, and which awaken her from sleep. They last up to two hours and cease as suddenly as they start. She also has palpitation, slight dyspnœa on exertion, a dull præcordial ache, sweats, and attacks of diarrhœa which last for several days. She has become increasingly nervous. There is no history of acute rheumatism in early life, and the Wassermann reaction is negative. She says that the attacks of palpitation occur many times in one week on occasion, and at other times she may be free from the attacks for several weeks or months. In the intervals between series of attacks she feels well. These symptoms have all been present for about three years, and at their onset she had much worry over the illness of her husband. During the first years of attendance, the average pulse-rate was 100, and her weight varied between 8 st. 4 lb. and 8 st. 10 lb.

A tired-looking woman with flushed, moist skin and a faint brownish pigmentation over the right shoulder and the back of the neck, which she is quite certain was not present two years ago. Pulse-rate 104 regular, blood pressure 170/70, fine tremor of the fingers, no exophthalmos, no thyroid enlargement. Apex impulse typically sudden in the fifth space, internal to the mid-clavicular line, first mitral sound accentuated, but not "blurred," soft systolic murmur at all areas. Electrocardiograms showed simple tachycardia; unfortunately no attack of the severe palpitation which awakened her in the night was recorded. X ray examination showed an over-demonstrative heart, not enlarged, with no increase in size of the pulmonary arc; the aorta was slightly increased in width. The basal metabolic rate was +47. During a course of iodine for four weeks her symptoms improved. The pulse-rate became slower (80) and her weight rose from 8 st. 8½ lb. to 9 st. 3 lb. Coincident with this improvement in symptoms, however, the thyroid which had never been enlarged became definitely full. This improvement lasted for six weeks when the symptoms again became worse, the palpitation started again as also did the diarrhœa, her weight, however, remained constant. Her condition is to-day unchanged. She refuses any operative treatment.

DIFFERENTIAL DIAGNOSIS

Since the diagnosis of the condition may present great difficulty, the differential diagnosis is naturally difficult.

Mitral stenosis is a condition which may closely simulate masked hyperthyroidism. In both the first sound in the mitral area may be loud, and in thyrotoxicosis it may be blurred and closely suggestive of a presystolic murmur, and in both the pulmonary second sound may be accentuated. In both an apical systolic murmur is often to be heard. A history of acute rheumatism in childhood may be of help, but its absence does not exclude the former diagnosis. If fibrillation is present the differentiation of the two diseases becomes even more difficult, as they are the very two which often induce this complication.

The diagnosis can often be made upon: (1) The presence of associated signs of thyrotoxicosis, slight though they be. (2) The X ray appearance of the heart. The latter is often most useful. If the case is one of masked hyperthyroidism, the heart will commonly be smaller than the clinical examination would indicate it to be; the left border would appear straight, due to a filling out of the pulmonary arc, and the whole heart would be actively contracting and over-demonstrative. Lastly, and of most importance in differentiation is the size of the left auricle as seen in the first oblique position after the administration of barium. It is usually enlarged in mitra stenosis and never in thyrotoxicosis.

If a right axis deviation or a wide, split P wave is present, the electrocardiogram may be of value in negativing the diagnosis of thyrotoxicosis. I have not found it to be of use in confirming this diagnosis.

The following case illustrates the difficulty of diagnosis between the two conditions :—

CASE 3.—Mrs. C., a woman of 42, admitted to hospital in April, 1931, with a history of attacks of palpitation for about 16 years, a dull præcordial ache, and shortness of breath on exertion for four years. There was no history of rheumatic fever, but she suffered from severe growing pains and frequent tonsillitis as a child. The pulse was very irregular with a rate of 90–100, rising to 130–140 with the slightest exertion or excitement. She stated that she had not lost weight, and when under observation—March, 1931, to April, 1932—her weight varied by 5 lb. only. Physical signs were as follows :—

Apex impulse in the fifth space just external to the mid-clavicular line, no thrill, first sound at the apex very loud and "blurred," ? presystolic murmur, and there was a systolic murmur, soft in character, and not well propagated. At the pulmonary area the second sound was loud and short. Electrocardiogram showed a sinus rhythm with very frequent ventricular extrasystoles. Blood pressure 135/80. A provisional diagnosis of mitral stenosis was made, but X ray examination showed the heart to be not enlarged, over-demonstrative, with a prominent pulmonary arc which pulsated very markedly, and the left auricle was not enlarged as it would have been had the diagnosis been correct. On further questioning she stated that she suffered from profuse sweats on the slightest exertion and that her skin was always moist; she was flushed and had a fine tremor of the fingers; there was no exophthalmos. There was no noticeable fullness of the thyroid gland, but the right lateral lobe was denser in consistency than the rest of the gland. There was no improvement after seven weeks' rest in bed with digitalis therapy. The basal metabolic rate was then estimated and found to be +30, and she was greatly improved by a short course of iodine, the rate dropped to 80, and the extrasystoles became less frequent. Later she relapsed again and a second course of iodine was given without result. As she refused to undergo operation, she was then given five applications of X rays to the gland at fortnightly intervals. As the result of this procedure she is very greatly improved and her basal metabolic rate has fallen to +16.

Raised blood pressure is another factor which tends to complicate the diagnosis of masked hyperthyroidism. It is an established fact that thyrotoxicosis alone alters the blood pressure, usually raising the systolic pressure, leaving the diastolic unaltered or even slightly lowered, and thus increasing the pulse pressure. Many clinicians to-day regard this increase in the pulse pressure as one of the most important diagnostic features in thyrotoxicosis. In masked hyperthyroidism the significance of the blood pressure is more difficult to assess, for the condition is found to occur in older people, the average age of the patients studied being 52 years, in whom the pressure is normally higher, and with moderately raised pressures it is very difficult to say how much of this hypertension is secondary to the thyrotoxicosis and how much is primary. With a high systolic pressure the fact that the diastolic pressure is little raised and the pulse pressure great is certainly of paramount importance in coming to a decision at this point.

In this connexion the following two cases are of great interest :—

CASE 4.—Miss D., aged 57, was first seen complaining of palpitation, nervousness, headaches, and sweats. The symptoms had been present for one year, and in that time she had lost 12 lb. in weight. She stated that a swelling had been present in the neck since the age of 21. Examination

showed a highly nervous patient with a moist flushed skin and a fine tremor of the fingers. There was a small, indefinite mass in the right lateral lobe of the thyroid gland which was not visible. The pulse-rate averaged 88 at rest and rose with slight exertion to 120. A soft systolic murmur was present at all areas. The mitral first sound was very loud and the aortic second sound a little accentuated. The blood pressure was 220/110. The electrocardiogram showed a well-marked left ventricular preponderance, and X ray a little enlargement of the left ventricle with a slightly wide aortic shadow.

She was admitted to hospital and treated as a case of hypertension, but after nine weeks in bed her symptoms were in no way altered; the blood pressure had fallen to 190/95. She was discharged and when seen again two months later her condition was unchanged. The pressure was then 220/105. After a further two months the operation of hemithyroidectomy was performed. Six weeks later she was much improved, her pulse-rate was 76, her palpitation, sound in the aortic area was also accentuated. Blood pressure was 240/130. Eighteen months before, in January 1930, it was 150/100. The pulse-rate was 92 and varied between this and 120 during her stay of 11 weeks in hospital. Electrocardiograms showed the attacks of palpitation to be due to a simple tachycardia; a few extrasystoles were present. During her period of attendance as an out-patient she had not lost weight.

The diagnosis was for some time in doubt, the doubtful presystolic murmur and the accentuated pulmonary second sound suggested the possibility of mitral stenosis combined with hypertension, but X ray examination showed a heart not enlarged, with no increase in size of the left auricle, over-demonstrative with a full pulmonary arc. The basal metabolic rate was then found to be +36. She was later operated upon, in September, 1931, and the right lateral lobe of the gland removed. Embedded in its substance was an "adenoma" with a surrounding area of hyperplastic gland tissue. She made a very good recovery, and when last

TABLE II.—SHOWING THE IMPORTANT FEATURES OF FIFTEEN CASES

No. of case.	Sex.	Age.	Duration of symptoms in years.	Palpitation.	Alteration in rhythm.	Enlargement of thyroid gland.	Exophthalmos.	Nervousness.	Sweating.	Pigmentation.	Diarrhœa.	Tremor.	Loss of weight.	Pain in chest.	Blood pressure.	Enlargement of the heart.	Basal metabolic rate.	Cardiac failure.
1	F.	57	2	+	E.A.F.	Sl. +	No	Sl.	No	No	No	Sl.	Sl.	No	160/85	+	..	+
2	F.	59	2½	+	S.T. + Ex.S.	No	No	No	+	No	No	+	Sl.	No	160/85	No	+37	No
3	F.	42	4	+	S.T. + Ex.S.	No	No	No	+	No	No	+	No	+	135/80	No	$\frac{+30}{+16}$	No
4	F.	57	1	+	S.T.	No	? Sl.	+	+	No	No	+	+	No	220/110	+	..	No
5	F.	42	5	+	S.T. + Ex.S.	No	No	No	+	No	+	+	Sl.	No	240/130	+	$\frac{+35}{+13}$	No
6	F.	40	3	+	P.A.F.	No	No	No	+	+	No	+	Sl.	No	145/85	No	+21	No
7	F.	51	10	+	E.A.F.	Sl. +	No	No	+	No	No	+	+	No	140/85	+	Normal.	No
8	F.	44	11	+	P.V.T.	Sl. +	? Sl.	+	No	No	No	+	No	+	150/90	No	..	No
9	F.	56	1½	+	P.A.F.	No	No	No	+	+	No	+	+	+	145/90	No	+2	No
10	F.	64	3	+	S.T. + Ex.S.	Sl. +	No	+	+	No	No	+	No	+	160/90	+	+16	No
11	F.	58	3	+	S.T.	No	No	No	Sl.	No	+	+	+	No	170/95	No	+25	No
12	F.	59	2½	+	P.A.F.	No	No	+	+	No	No	+	+	+	190/100	No	+40	No
13	F.	47	3	+	S.T.	No	No	+	+	+	+	+	No	No	170/70	No	+7	No
14	F.	48	4	+	S.T.	No	No	+	+	No	No	+	+	No	155/70	+	+18	No
15	F.	57	3	+	P.A.F. Ex.S + S.T.	+	No	+	+	No	No	+	Sl.	No	170/90	+	..	No

S.T. = Simple tachycardia; Ex.S. = Extrasystoles; P.A.F. = Paroxysmal auricular fibrillation; E.A.F. = Established auricular fibrillation; P.V.T. = Paroxysmal ventricular tachycardia; Sl. = Slight.

nervousness, and tremor had all gone; to-day, apart from occasional headaches, she is quite well. She has gained 1 st. in weight. Her blood pressure, however, is still 220/120.

CASE 5.—Mrs. E., a woman aged 42, who had previously attended the hospital as an out-patient for 18 months, was admitted in July, 1931, complaining of attacks of palpitation brought on by exertion or emotion, and lasting for about an hour. They were of very frequent occurrence, several such attacks in the 24 hours was common. She also complained of sweating attacks in bed at night, a cough in the winter time, and rapid fatigue. These symptoms had been present in varying degree for five years. Five years ago she had considerable worry in her home life. During the two and a half years prior to her admission she had been in another hospital twice on account of her palpitation. There was no previous history of rheumatism.

Examination showed a well-nourished woman, rather apathetic in appearance, with flushed, moist skin, no exophthalmos, fine tremor of the fingers, and no noticeable enlargement of the thyroid gland, measurement around the base of the neck being 13 in. Palpation of the neck revealed an increase in density of the right lateral lobe of the thyroid, and the patient herself volunteered the information that she felt at times that she must swallow to move something.

The heart was not clinically enlarged, though the apex was sudden and shock-like. Mitral area, first sound accentuated and blurred, very suggestive of a short presystolic murmur; soft systolic murmur. Pulmonary area, second sound accentuated; soft systolic murmur; the second seen, three months after the operation, was very much improved and the palpitation was gone. The pulse-rate was 80. The metabolic rate had fallen to +13. The blood pressure was still 230/125.

The points of interest in a study of these two cases are: (1) That although both had a raised blood pressure, the symptoms which were relieved by operation were due to the associated thyrotoxicosis. (2) That the removal of the toxic thyroid did not influence the blood pressure. Further, in both the diastolic pressure was high. White,[26] in describing a series of cases of tachycardia due to hyperthyroidism without obvious goitre, mentions one case with a high blood pressure, in whom operation relieved the symptoms, but left the pressure unaltered.

The differential diagnosis between masked hyperthyroidism and *pulmonary tuberculosis* may occasionally give rise to difficulty. In both conditions sweats and loss of weight may occur and in both the patient may be languid, listless, and weary looking, but in the former condition cough is uncommon, as is also a raised temperature. Another point of distinction is the fact that in thyrotoxicosis the tachycardia persists after a long period of rest in bed.

Tucker [27] records a case in which a diagnosis of pulmonary tuberculosis was made and later changed to thyrotoxicosis, the basal metabolic rate being +35 and the patient responding well to iodine therapy.

The symptomatology of the condition may rather closely resemble that of *effort syndrome* so commonly seen in soldiers in the late war, and said by many to be still of frequent occurrence amongst civilian populations; but masked hyperthyroidism occurs notably in older patients and in a different type of individual to the latter condition. Most of the patients in this series were in the fourth, fifth, or sixth decades. Foster [28] points out the difficulty of diagnosis between *neurocirculatory asthenia* in young adults with an adolescent goitre and thyrotoxicosis, and says that the subsidence of the tachycardia in sleep is of use in differentiating the two conditions.

Hamburger and Lev [6] describe one case which closely simulated *diabetes mellitus with hypoglycæmic shock* following insulin medication, but which was relieved by iodine and thyroidectomy.

SUMMARY AND CONCLUSIONS

This paper is an account of the investigation of 15 patients, all of whom may be described as cases of hyperthyroidism masked as heart disease. All presented themselves complaining of cardiac symptoms; all were women; and the average age was 52 years. The average duration of symptoms was 3·8 years. The majority were apathetic in appearance, of good nutrition, and quite unlike the classical picture of Graves's disease. The diagnosis was indicated by the cardiac condition, and the factors which pointed to it were:—

(1) "Suddenness" of the apex-beat, even when the rate was slow, suggesting an increase in the size of the heart, which was not present in the majority. The apex impulse may be likened to that given by a normal heart after exercise.
(2) Presence of extrasystoles with a rapid rate.
(3) Presence of paroxysmal auricular fibrillation.
(4) The X ray appearance of the heart.
(5) Increase in the pulse pressure.

It was confirmed by the presence of less obtrusive associated symptoms and signs of which tremor and moistness of the skin are the most constant and were present in all of this series.

Thyroid enlargement was absent in ten patients in the series, in two a very slight fullness was noted only when the patient was made to swallow in the sitting posture, and in a further two a dense calcified nodule was present, though its significance had not been recognised.

Exophthalmos is rarely seen in this condition, but in two cases a slightly staring expression was noted. Pigmentation of the skin was seen in three cases. Some loss of weight occurred at some time in the majority but was never marked, and its occurrence was never volunteered by the patient. Its presence is not essential in the diagnosis.

Estimation of the basal metabolic rate is of great value if it is found to be raised as a means of confirming the diagnosis. The majority of patients seen had a raised rate, but several cases were studied with a normal or only slightly raised rate in whom the clinical picture and the response to treatment were comparable with patients in whom the rate was raised.

The association of pain in the chest of anginal nature and thyrotoxicosis is discussed. Five patients in whom this occurred are mentioned; in four the pain was felt at the onset of the attacks of palpitation, and as the latter were the result of thyroid toxicity, and appeared to precipitate the pain, such pain must be regarded as a symptom of this condition. Its frequency in this series can be explained on the grounds of the age-incidence—i.e., an age at which atheroma of the coronary arteries is commonly present. The thyrotoxicosis must then be regarded as an ætiological factor of the pain only in as much as it leads to an increased demand for work on the part of the heart, in the same way as does exertion or emotion.

Two cases are described in which high blood pressure was present, but in whom the symptoms were due to an associated thyrotoxicosis. In both operation entirely relieved the symptoms, but left the pressure unchanged.

Of great value in diagnosis are the failure of rest and digitalisation to affect the condition. Iodine is often of value as a therapeutic test when it is first given. This effect, though often striking, was always transitory, and later the drug had no effect. The patient appears to become refractory to it.

A plea is made for the earlier recognition of these cases on the grounds of: (1) their comparative frequency; (2) their difficulty of diagnosis; and (3) their amenability to treatment.

The important features of the cases studied are set out in Table II.

My thanks are due to Dr. John Parkinson who proposed this investigation and who has given me much advice and help throughout; to the members of the honorary staff of the National Hospital for Diseases of the Heart for permission to study the patients under their care; and to Prof. E. C. Dodds and Dr. J. D. Robertson for their kindness in estimating the basal metabolic rates.

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REORGANISATION OF ST. CHAD'S HOSPITAL, BIRMINGHAM.—This hospital which, although it is owned by a company, limits its dividends to a maximum of 6 per cent., profits beyond that amount being used for improved equipment, has recently been reorganised. There is still a resident medical officer, with a full nursing staff, but there is no longer a medical staff. Under the new scheme patients are received from, and attended by, any doctor, whether consultant or general practitioner. There is a uniform charge of five guineas in a ward or in a single room, as desired; there is a maximum charge of one guinea for the use of the theatre. The doctors fix their own fees, which are paid to them direct. The hospital accommodates from 80 to 85 patients.

THE ANÆMIA OF CARCINOMA OF THE STOMACH

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The treatment of the anæmia of malignant disease has not been studied with the same intensity as that of other less fatal anæmic states. In the desire to treat the primary lesion little attention, as a rule, is directed to the condition of the blood. The anæmia is regarded as a secondary manifestation, often as part of the malignant cachexia, and is allowed to take its course untreated. There are, however, important exceptions to this general statement, and, in operable cases, the surgeon who is anxious to make his patient "fit for surgery" takes steps, usually by means of transfusions, to combat anæmia if it be at all severe.

In early malignant disease anæmia is occasionally the presenting symptom, especially of obscure growths of the alimentary tract. There are two situations in which the primary lesion is likely to be found—namely, the colon, especially the ascending portion, and the stomach. Anæmia associated with cancer of the stomach is the concern of the present report. All my three cases presented as examples of severe anæmia with very little suggestion of gastric disturbance other than loss of appetite. All three at first offered considerable difficulty in diagnosis, and all, unfortunately, were inoperable—one on account of peritoneal and later intrathoracic metastases, another because of advanced age, and the third because of local infiltration into the liver. Nevertheless in each case the anæmia responded in a remarkable way to treatment in spite of the existence of the growth, and the improvement continued until some serious complication supervened. The changes in the blood were followed by daily observations in Cases 1 and 2; less frequent observations were made in Case 3.

Figs. 1 and 2 illustrate the changes in the blood (red corpuscles, hæmoglobin, and reticulocytes) in Cases 1 and 2 respectively.

THE FIRST CASE

Male, aged 55. Family history negative. He had never had a day's illness until the onset of the present illness about eight weeks before admission to hospital. He first noticed that he was breathless even after the mildest exertion, and was told by his friends that he looked pale and ill. He noticed increasing weakness, and complained of tingling in the fingers and toes. He made no complaint of disturbance of digestion other than that for the last month or so he had not the energy to eat. He had not noticed much loss of weight. On examination he showed marked pallor, the teeth were septic, the tongue normal. The central nervous system and other systems showed no abnormality except that the abdomen was a little full and there was slight discomfort on deep pressure to the right of the mid-epigastric region.

The blood count at this time was as follows: red cells, 2,000,000; hæmoglobin, 37 per cent.; colour-index, 0·66; reticulocytes, 3·5 per cent.; and white cells, 6000; the relative proportions being normal. The film showed the anæmia to be of the microcytic type, many of the red cells were slightly distorted in size and shape, and a moderate degree of polychromasia was present. During the period of investigation the patient was given half an ounce of liver extract and half a pound of whole liver daily, and this was continued for 13 days.

The presence of free fluid in the peritoneum, the development of a palpable tumour in the epigastrium, and a positive occult blood test strongly suggested carcinoma of the stomach. There was achlorhydria in the gruel test-meal with altered blood in nearly every sample, and X rays showed the filling defect of carcinoma at the pyloric end of the stomach. The Wassermann and the van den Bergh reactions were negative. The gastric juice secreted on histamine stimulation contained no free acid and scarcely any pepsin—i.e., 2 Grosse units (normal=30 to 50 units).

At the end of the period on liver there was no improvement in the blood, the number of the red cells was unaltered, the hæmoglobin had fallen to 34 per cent., and the reticulocytes were 3·5 per cent., never having risen above 4·8 per cent. After an interval of three days, at the end of which the occult blood test was still positive, a mixture containing grs. 90 of iron and ammonium citrate a day was given. On the fourth day the reticulocytes reached 14·7 per cent., and on the sixth day a maximum peak of 17 per cent. was attained. On the eighth day the red cells were 3,040,000, the hæmoglobin 42 per cent., the reticulocytes had fallen to 5·7 per cent. The blood continued to improve, and 18 days after the commencement of treatment by iron the red cells were over 4,000,000, the hæmoglobin 66 per cent. From the eighth day the stomach had been washed out every morning. On the twenty-third day a considerable quantity of blood was present in the stomach, and the blood in the stools increased. Apparently a moderate hæmorrhage caused a cessation in the improvement in the blood (Fig. 1). The patient now developed a large pleural effusion due to intrathoracic metastases, and active treatment of his anæmia was allowed to lapse.

In this case the anæmia associated with carcinoma of the stomach was not affected by liver treatment, but following the administration of iron by mouth a reticulocyte crisis and a notable improvement in the condition of the blood occurred.

THE SECOND CASE

Male, aged 73. Family history negative. He had always been a healthy man until about 18 months ago when his bowels, previously quite regular, became a little constipated. Purgatives were taken which induced an attack of diarrhœa, and later diarrhœa sometimes occurred spontaneously. From about a year ago the patient became subject to bouts of nausea at long intervals, when he was off his food for several days, and periods when he suffered from flatulence after whatever he managed to take. His diet was largely farinaceous, for he developed a slight distaste for meat. These digestive symptoms were only elicited on careful questioning, for the principal complaint of the patient was his extreme weakness, while his friends said that he had become very pale and a shadow of his former self. He had in fact only lost about 6 lb. in weight.

On examination he was very pale but not wasted; he had 3,400,000 red cells, 40 per cent. hæmoglobin, colour-index 0·58, white cells 9800, the proportion of polymorphs being very slightly raised. Gastric analysis revealed achlorhydria in the gruel test-meal, histamine after lavage produced small quantities of free acid and pepsin, but both were much below the normal response. There were traces of altered blood in the gruel fractional test and in the stomach washings, and occult blood was present in the stools. The van den Bergh test was negative, as also was the Wassermann reaction. Radiography of the stomach showed a large filling defect extending along the pyloric canal.

During the period of investigation the patient had been given liver extract in full doses. The anæmia was of microcytic type with a moderate degree of polychromasia and anisocytosis. It was therefore not expected that the patient would respond to liver, but he was allowed to continue with it for eight days. At the end of this time the number of red cells was unaltered and the hæmoglobin had fallen to 36 per cent., as shown in Fig. 2. After four days' interval, at the end of which the occult blood test in the stools was again found to be positive, he was given iron in the form of Blaud's pill grs. 20 t.d.s., and from the fifth day the stomach was washed out every morning. A reticulocyte crisis occurred with a peak on the ninth day. The subsequent uninterrupted improvement in the blood can best be seen in Fig. 2.

Operation being refused on account of age the patient returned home, where he continued to improve for about three weeks. Then symptoms of pyloric obstruction developed, practically all treatment was stopped, and the patient rapidly went downhill and died.

In this case the anæmia of carcinoma of the stomach failed to respond to liver, but following treatment with iron a reticulocyte crisis and a remarkable improvement in the anæmia occurred.

THE THIRD CASE

A married woman, aged 42. She had been anæmic and weak for many months after each of three pregnancies. She, however, dated her present illness in an indefinite way from the birth of her last child one year ago. During delivery she lost more blood than usual, and was kept in bed two months with a white leg. Mild symptoms of

indigestion were noticed about this time, chiefly fullness and distension in the epigastrium. She remained excessively weak and pale and was in fact an invalid. Three weeks before admission she had a bilious attack, was nauseated, and vomited. She subsequently had three similar attacks. Her weight had been steady. The periods had not reappeared since her confinement.

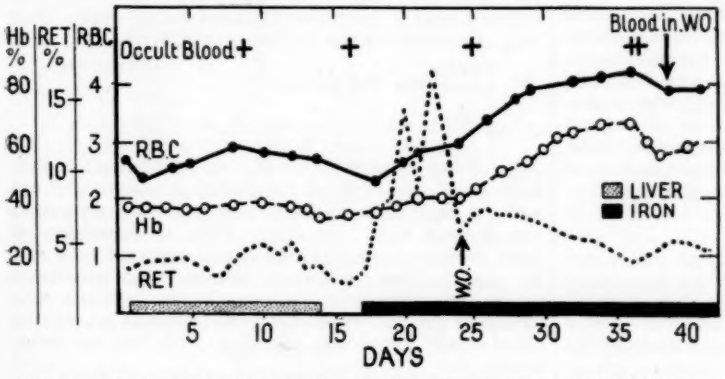
On examination she showed a waxy pallor of the skin with excessive pigmentation of the exposed parts and she was dyspnœic at rest. The heart, lungs, and central nervous system were normal. The tongue was smooth, the nails brittle, the spleen was palpable 1 inch below the ribs. The liver was enlarged downwards nearly 3 inches, a hard mass the size of an egg projecting from its lower edge to the right of the midline. The blood count showed the following changes: red cells, 2,720,000; hæmoglobin, 18 per cent.; colour-index, 0·33; white cells, 7200; the differential count being normal. The gruel fractional test showed achlorhydria; the juice secreted on histamine stimulation also contained no free acid, and the pepsin content was only equal to 3 Grosse units. The van den Bergh and the Wassermann reactions were negative.

The early investigations suggested a large gall-bladder with stones, adherent to the stomach and deforming it. Later the persistence of occult blood in the stools and the radiogram which showed a filling defect in the stomach led to a diagnosis of carcinoma.

During the period of investigation this patient was given Blaud's pill grs. 45 daily, and 1 drachm of acid. hydrochlor. dil. t.d.s. Within two weeks the hæmoglobin rose to 30 per cent., and on the twentieth day from the commencement of treatment by iron the red cells were 4,660,000, and the hæmoglobin was 45 per cent.; after another 14 days the latter had risen to 55 per cent., and the spleen could no longer be palpated.

This case with an anæmia of probably three years' duration, typical in its onset and progress of simple achlorhydric anæmia, responded in a dramatic way to large doses of iron in the presence of an inoperable carcinoma of the stomach.

FIG. 1



CASE 1.—Showing rapid effect produced by iron after a negative period on liver. WO = gastric washout.

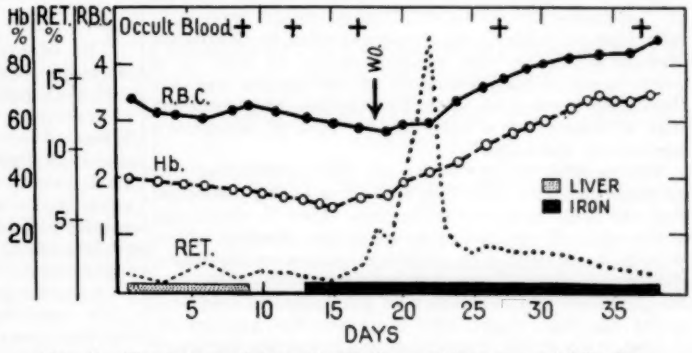
DISCUSSION

These three patients illustrate how hypochromic microcytic anæmia associated with carcinoma ventriculi may respond in a remarkable way to large doses of iron. The severe gastric secretory defect is comparable with that of simple achlorhydric anæmia if contamination of the gastric juice with blood and exudate from the eroded growth surface be excluded.[1] Thus two cases were completely achlorhydric to both the gruel and the histamine tests, while the third showed only traces of free acid on histamine stimulation. All three had gross pepsin defect in the histamine secretion.

It is useful to inquire into the possible factors which cause early anæmia in certain cases of carcinoma of the stomach. One is obviously not concerned with the anæmia of the later cachexia, even assuming it has a different explanation, which is doubtful; or that due to gross hæmorrhage. In the type under discussion the following factors may, in varying degrees, play a part. (1) Repeated but quite small hæmorrhages from the surface of the growth, even in the earliest stages. The persistence of occult blood in the stools throughout the course of the disease is good evidence of this. (2) Defective nutrition from impairment of appetite, and reduced or modified intake of food defective in the necessary hæmatinic principles; in this connexion the common early symptom of distaste for meat is of special interest. (3) Defective gastric digestion due to disturbances in the gastric secretions. It is believed that changes in the gastric secretion associated with chronic gastritis antedate the development of carcinoma in nearly 75 per cent. of cases—i.e., those other than carcinoma *ex ulcere*.[2] Thus achlorhydria has been found years before the development of cancer of the stomach, and certainly achlorhydria and apepsia are present in the large majority of such cases once the lesion is established.

There are two well-defined blood diseases in which comparable gastric defect is present[3]; Addisonian pernicious anæmia, hyperchromic and megalocytic, and simple achlorhydric anæmia, hypochromic and microcytic.[1] One would expect to meet similar disturbances of the blood occasionally in carcinoma of the stomach. Thus when the gastric secretory defect entails the failure to form the intrinsic antianæmic factor (Castle) a megalocytic anæmia might appear which would respond for a time to the liver or stomach principle. Such cases have been reported by Simpson.[4] On the other hand, when chronic and persistent blood loss occurs in an individual on the border of iron starvation, the anæmia should be of the microcytic hypochromic type, and should respond for a time to large doses of iron. Anæmia of this type is an exact parallel to simple achlorhydric

FIG. 2



CASE 2.—Showing negative result with liver and improvement following reticulocyte crisis induced by iron.

anæmia.[5] In such individuals other factors may play some part and, as in true simple achlorhydric anæmia, an initial poor reserve of iron may be due to a diet habitually poor in iron; but, be this as it may, iron starvation will certainly tend to develop in the presence of achlorhydria and pepsin defect (Mettier and Minot [6]).

Two practical points may be stressed from observations on these and other similar cases. The first relates to diagnosis: In any obscure case of anæmia of "secondary" microcytic hypochromic type it is fallacious to believe that improvement in the blood picture following the administration of iron is a point against the diagnosis of malignant disease. Providing there is no large hæmorrhage improvement may continue for a time in the face of secondary metastatic deposits.

The second point concerns the preparation of operable cases for gastrectomy. It is highly probable that the large majority of anæmic cases of carcinoma of the stomach can be improved by the administration of large doses of iron by mouth for a few weeks before operation. This improvement is enhanced by the simultaneous administration of hydrochloric acid and gastri clavage, which also facilitate the absorption of iron. To bring the blood condition up to what is desirable for operation a transfusion may finally be necessary, but the iron previously given has provided the patient with a reserve which will be available during convalescence, quite apart from the immediate contribution to the improvement in the anæmia.

In Case 3 there is a possibility that true uncomplicated simple achlorhydric anæmia was followed by the development of carcinoma of the stomach. The sex, the onset, and development of the anæmia, and the extremely dramatic response to iron, including the recession of the spleen favour this view. This would correspond to the cases recorded by Strandell,[7] Simpson [4] and Plummer,[8] of carcinoma developing in the stomachs of patients with Addisonian pernicious anæmia. According to Saltzman,[9] if the association is more than coincidence, and both the anæmia and neoplasm have a common basis of which the achlorhydria may be taken as an index, then such cases must occur with increasing frequency now that, without change in their gastric secretion, the lives of patients with pernicious anæmia are prolonged by treatment with liver.

SUMMARY

The changes in the gastric secretion associated with carcinoma of the stomach play an important part in the causation of the early anæmia sometimes met with in this disease.

The anæmia may be megalocytic and respond for a time to liver; this form is rare. It may be microcytic and temporarily respond to large doses of iron; this form is more common. Three such cases of microcytic anæmia, all of which responded to iron, are described in this paper.

I am indebted to Dr. A. F. Hurst for permission to investigate Cases 1 and 2, and to Dr. L. J. Witts for Case 3, and also for some details of the early history.

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DIABETES MELLITUS AND INSIPIDUS

ASSOCIATED IN ONE CASE

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THE occurrence of diabetes mellitus and diabetes insipidus in the same patient is extremely rare. Although pathologically quite distinct, both diseases present the symptoms of thirst, polyuria, and wasting. When either disease is present alone, the glycosuria and high specific gravity in diabetes mellitus easily distinguishes it from diabetes insipidus, where the urine contains no sugar and has a very low specific gravity. But when both diseases are present, only modern methods of investigation, including blood-sugar estimations and a test of the effect of pituitary extract, can prove their coexistence.

No case which satisfies such criteria has been reported in this country. In America, however, F. N. Allan and L. G. Rowntree [1] have recently described two cases of their own (the only two in the Mayo Clinic since 1912) and have reviewed the existing literature. From this it appears that satisfactory proof of such cases is extremely rare.

The case now described demonstrates the combination of these two diseases in one patient, and shows their control by insulin and pituitary extract.

CASE RECORD

A man of 26 was first seen by Dr. R. Castello in April, 1931, when many symptoms suggesting diabetes mellitus were present—lassitude, thirst, polyuria, polyphagia. A heavy glycosuria was discovered and a half-hourly blood-sugar curve after 50 g. glucose gave the following results:—

Fasting	0·160 per cent.
½ hour after 50 g. glucose	0·210 „ „
1 „ „ „ „	0·270 „ „
1½ hrs. „ „ „	0·340 „ „
2 „ „ „ „	0·285 „ „

An 8-line (Lawrence) diet was instituted at first with small doses of insulin (5 b.d.). Later 13 lines and 10 and 8 units kept the patient aglycosuric and feeling well. In April, 1932, a succession of boils increased the insulin requirements to 14 and 12 units. This increased dosage soon produced severe hypoglycæmia for which the patient was admitted to the West London Hospital where the blood-sugar curve was repeated with the following results:—

Fasting	0·245 per cent.
1 hour after glucose	0·300 „ „
2 hours „ „	0·300 „ „

This further confirmed the diagnosis of diabetes mellitus and 10 units b.d. were recommended.

In July, 1932, the patient was seen by one of us in consultation and it was noticed that the urine contained only 0·4 per cent. of sugar, was pale like water, and had a specific gravity of only 1003. This was not consistent with the typical urinary findings in diabetes mellitus. Adjusting the diet and raising the insulin to 40 units per day adequately controlled the diabetes mellitus, but did not appreciably reduce the polyuria. The patient's measurements of the polyuria varied between 180 and 200 oz. per day

[1] Endocrinology, 1931, xv., 97.

(5500 c.cm.) and the specific gravity of the sugar-free urine remained between 1002–1004. Even when glycosuria was present, the specific gravity never rose above 1007. Diabetes insipidus was therefore suspected. A dose of pituitary extract (7·5 units = 0·75 c.cm.) was accordingly given at noon with the following results. The urine contained no sugar during the test.

Time.	Spec. grav.	Time.	Spec. grav.
Noon	1004	3 P.M.	1015
12·30 P.M.	1005	4 P.M.	1015
2 P.M.	1012		

The patient was admitted to King's College Hospital for fuller investigation, since the presence of both forms of diabetes seemed likely.

He was neuro- and psychosthenic, but showed no neurological abnormalities apart from sluggish tendon reflexes. No evidence of pituitary involvement was elicited; the optic discs and fields, and X ray examination of the fossa, were normal; the Wassermann test negative. No albumin or other abnormality was present in the urine.

The patient was not quantitatively resistant to insulin and required at his worst only 40 units a day on a diet of 80 g. carbohydrate, 75 protein, and 150 fat—quite a moderate dose. The insulin, however, acted unusually slowly and the blood-sugar was lowest, not 4 to 6 hours after insulin but much later, and hypoglycæmic symptoms appeared on several occasions 8 to 10 hours after insulin. He gained weight satisfactorily on adequate diabetic treatment, but continued to drink copiously and to pass 160–200 oz. of urine a day. When 5 units (0·5 c.cm.) pituitary extract were given morning and evening with the insulin this distressing thirst and polyuria disappeared:—

Days *before* pituitrin.	Fluid intake, oz.	Urine; volume.	Days *after* pituitrin.	Fluid intake, oz.	Urine; volume.
6	169	180	1	124	105
5	192	160			
4	175	138	2	108	80
3	180	190			
2	186	177	3	110	95
1	184	181			

These studies confirm the coexistence of idiopathic diabetes insipidus with true diabetes mellitus.

At first the insulin and the pituitary extract were given by separate injections, but later the two were measured and mixed in the same syringe and this was found to be equally effective. No more insulin was required when pituitrin was added to the insulin. It is fortunate that two such serious diseases can be controlled as easily as one in the same patient—though perhaps not so cheaply!

DISCUSSION

There is no evidence to suggest that the combination of these two diseases was other than fortuitous in this case. Nor did the patient's history give any clear idea of which disease occurred first, although he gave an indefinite history of a period of polyuria at the age of 8, 19 years previously.

We know that diabetes insipidus is due to a failure of pituitary function (hypofunction) and that a form of hyperpituitarism (acromegaly) may produce true diabetes mellitus. This patient, however, showed no stigmata suggesting previous acromegaly and therefore presents no evidence of any previous pituitary lesion which might account for the origin of the two diseases. In both of Allan and Rowntree's cases the diabetes insipidus preceded the appearance of the sugar by several years and the cause seemed to be a definitely dated pituitary lesion—a head injury in one and encephalitis in the other.

SUMMARY

1. A case is described in which diabetes mellitus and insipidus is present in the same patient. A combination seems fortuitous.

2. Treatment with insulin and pituitary extract controlled both diseases. No chemical or physiological antagonism was observed when the two hormones were mixed and injected together.

DERMATITIS FOLLOWING THE WEARING OF DYED FABRICS

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THE report of Parsons (1927) to the Ministry of Health drew attention to dermatitis resulting from the wearing of dyed furs, and suggested, from the evidence, that the condition was of the nature of a personal idiosyncrasy and occurred in people not ordinarily disposed to dermatitis. The subject has received much attention, and the general consensus of opinion holds that the reaction is due to the use of amines, diamines, aminophenols, diphenols, and their substitutes in the dyeing of furs. It is suggested, from the work of Gordon (1924–26), that the irritant present in dyed furs is an oxidation product of para-phenylenediamine. A recent paper by Percival (1931) is of considerable interest. Percival shows first that, of the several chemical substances employed in the preparation of the fur, only one, substance A (which is known to contain para-phenylenediamine), and the oxidation product of substance A, is the factor which takes any part in the production of dermatitis; secondly, that the dermatitis depends on an allergic state of the skin, and that it is idiosyncratic in nature.

Chemical analysis can, in view of these findings, yield no evidence of the biological effect of a dyed material. The correct use of the so-called "patch test" is therefore of importance. Bloch (1924–29) has used this method to demonstrate the idiosyncrasy of individuals to poison ivy, primula leaves, orthoform, &c. Sulzberger and Wise (1923) give a full description of the contact or patch test in dermatology, and, according to these authors, investigation by the test is applicable to such conditions as acute occupational dermatitis, dermatitis venenata, dermatitis medicamentosa, and drug eruptions of eczematous type (Ingram (1932)).

RECORDED CASES

While the diagnosis of fur dermatitis has become established, skin reactions due to dyes or to the wearing of dyed material other than furs have been almost unrecognised, and little information is available in the literature. Sezary, Lefevre, and Rivoire (1930) have described one case of artificial dermatitis of the neck after contact with a parti-coloured red and yellow dyed silk handkerchief; the inflammation was localised to the area of the skin in direct contact with the material. A yellow colouring matter, azofluvine, was extracted from the yellow coloured material, and azarine S from the red area.

White (1897) described five cases of dermatitis following the wearing of unwashed black cotton shirts. Symptoms appeared in each case about ten days after the shirts were first worn; the lesion was sharply confined to those areas of the skin in contact with the shirt and consisted of an infiltrated erythema. The shirts were dyed with aniline black. Porosz (1924) reported two cases of localised dermatitis of the legs following the wearing of black socks. The dye concerned was again aniline black, and the lesion produced was similar to that described by White.

In our opinion, dermatitis due to common dyes is more frequent than is usually supposed. The reaction is not dependent on the presence of any abnormal substance, but results from the contact of the skin with the dye, which, though harmless to the majority of individuals, causes dermatitis in some subjects. The idiosyncratic nature of the reaction can be definitely established on investigation, and we have recently seen an individual who reacted to a dye previously considered harmless. In this paper this case is reported in full, since it serves as an excellent example of the class, and, further, we were able to examine the patient and carry out part of our investigations during the very acute stage of the illness.

HISTORY OF A CASE

On August 29th, 1931, Mrs. X., aged 35 years, consulted one of us for a dermatitis affecting the upper part of her trunk, which was so irritable that it caused loss of sleep and impaired her general health. She attributed her condition to the wearing of a

FIG. 1

Photograph of eruption affecting upper chest and shoulders but not involving skin protected by shoulder-straps and petticoat.

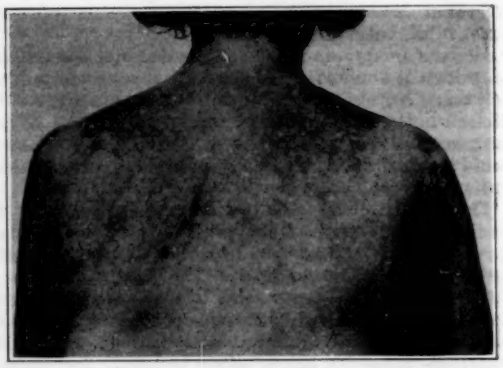
blouse which had recently been sent to a garment dyer to be dyed black.

The fabric of the blouse was a mixture of cotton and a regenerated cellulose artificial silk, and was originally pink in colour. On July 25th the blouse was sent to a firm of dyers and was returned after a few days dyed black as ordered. The garment was first worn about a week later, on August 2nd or 3rd.

The blouse was worn for about 14 days without serious inconvenience. After a few days' wear the skin of the folds of the axillæ and the flexor surfaces of the forearms was observed to be stained with dye; later, the skin became irritable and a rash appeared. About August 16th the patient stopped wearing the blouse, as she and her doctor suspected it of being the probable cause of the skin condition. Although the blouse was not worn again, the eruption increased in severity during the period August 16th to 29th, when she was first examined by one of us.

On examination the rash was found to have a striking distribution limited to the upper part of the trunk, being strictly confined to those areas of the upper thorax and shoulders left uncovered by the patient's undergarments. The rash was limited in front to about the level of the third rib, spreading over the shoulders and slightly on to the neck, avoiding only the skin protected by the shoulder-straps, and a V-shaped area corresponding to the front of the blouse. It extended down the back to about the same level as on the front of the chest. The hollows of the axillæ were clear and the eruption faded on the upper arms, but reappeared over the flexor aspects of the elbows. The lesion was an acute, œdematous, uniform, papular, eczematous eruption, and was intensely irritable. The unique distribution and character of the dermatitis made it obvious

FIG. 2



Photograph of eruption affecting upper back and shoulders but not involving skin protected by shoulder-straps and petticoat.

that it arose from some form of external irritant (Figs. 1 and 2).

No ætiological factors other than the wearing of the dyed garment could be elicited from the patient's history. Apart from three small patches of chronic psoriasis of the scalp, from which the patient had suffered for 12 years, there was no sign or history of skin disease. No family history of asthma, urticaria, or eczema could be obtained.

The patient had taken a small quantity of thyroid daily for ten days during July, but had ceased this treatment for a month prior to consulting us. After the appearance of the skin eruption, antipyrin was prescribed to relieve the itching and to promote sleep. Local application of "Germolene," lead lotion, calamine lotion, "Resinol ointment" had all been tried prior to August 29th to relieve the skin affection.

The patient had not used hair dyes or depilatories, and no chemicals had been applied to the skin until after the onset of the rash. No new garments other than the dyed blouse had been worn which could account for the onset of the trouble. She gave no history of previous eruptions from dyed materials.

Clinical examination failed to reveal any constitutional or organic abnormalities and no disorders of function were detected. Special examinations carried out included urine analyses, blood-sugar and blood-urea estimations, blood-sugar curves following the ingestion of glucose, and the blood Wassermann reaction. The Wassermann reaction was negative, and the results of the other examinations were found to be well within normal limits.

"PATCH TEST" INVESTIGATION

On Monday, August 31st, a "patch test" was made. A portion of the blouse, approximately 2 in. square, was placed on the flexor aspect of the right wrist, covered with lint, which was again covered with a square of gutta-percha tissue and strapped on the forearm. A piece of lint without a portion of the blouse was applied in a similar manner, as a control, to the flexor aspect of the left forearm. The applications were removed 40 hours later. The skin of the

left forearm was normal, while that of the right forearm presented an area of acutely irritable, œdematous erythema, raised about one-eighth of an inch above the surface level of the skin, and localised to an area exactly corresponding to the position of the dyed material. The lint covering the piece of dyed material was observed to be well stained with dye. The patient stated that the right forearm became irritable some 24 hours after the application of the material. The area was still acutely inflamed five days later. Treatment was then applied and the condition subsided, though it was still possible to recognise the area on Sept. 12th.

Three control tests were made at the same time on healthy persons. Similar applications were made, as described above, to the flexor surfaces of the forearm of one female and two male adults. The results were negative after contact for 40 hours: the skin and the lint were observed in each case to be stained with dye.

A weak cold water extract obtained from the material was next applied to the skin of the patient's forearm. The extract was reapplied after 6 hours and again after 18 hours. The patient stated that the site became red and irritable two days later. The reaction disappeared in 24 to 48 hours.

FIG. 3

Patch test reaction. A portion of the blouse, disc-shaped, with centre cut out, was applied to left forearm for 24 hours, seven months after the original attack of dermatitis had subsided. The photograph shows the reaction.

The fastness of the dyed material to perspiration was then examined.

Artificial perspiration liquors were used which had been previously shown to have the same action as perspiration on dyed artificial silk. Vass and McSwiney (1930) demonstrated that perspiration undergoes considerable changes on standing; there is a marked increase in the ammonia nitrogen content with a disappearance of urea nitrogen, the reaction becoming definitely alkaline, due to bacteria normally associated with freshly shed perspiration. Acid and alkaline solutions were therefore used, of the following composition:—

Acid solution.—2·65 g. common salt and 0·75 g. urea per litre, brought to pH 5·6 with normal acetic acid.

Alkaline solution.—0·839 g. ammonium chloride, 1·732 g. common salt, and 0·424 c.cm. ammonia (spec. grav. 0·88) per litre, brought to pH 7·8 with normal acetic acid.

The material was backed between pieces of neutral undyed wool and white cotton, then thoroughly wetted in the acid or alkaline solution. The fabrics were passed through rollers to give 100 per cent. increase in dry weight. The damped materials were wrapped round a chemically cleaned glass tube and inserted into a second glass tube, so that equal pressure might be exerted over the whole area of the pattern. After incubation at 37° C. for two hours the materials were allowed to dry and then examined. The wool and cotton backings were found to be deeply stained, demonstrating that the dye bled readily from the fabric both in acid and alkaline perspiration liquors.

To establish whether the dyed material would act as an irritant to the normal person, the response of a large number of individuals to the fabric was investigated, using the patch test.

A portion of the material, approximately 2 in. by 1 in., was placed on the back or arm, covered with a square of gutta-percha, and strapped to the skin (B.1). Pieces of green (G), red (R), and two black materials (B.2 and B.3), were applied at the same time. These materials were stated to have provoked dermatitis in other individuals. The fabrics were allowed to remain in contact with the skin for 24 hours, when the strapping was removed and the skin examined. The response was stated to be positive if a rash was visible in the area covered by the fabric for a period of at least 12 hours. The investigation was extended to individuals suffering from various forms of skin and other diseases. The patch test was again employed as in the previous experiments, the fabric being placed in contact with an area of normal skin.

Results of Patch Tests with Dyed Fabrics, B.1, G, R, B.2, B.3

Normal subjects.	Sex.	Reaction.
30	Male.	Negative.
6	Female.	"

The skin conditions included lupus vulgaris, lupus erythematosus, urticaria, seborrhœic and eczematous dermatitis.

Subjects of skin diseases.	Sex.	Reaction.
31	Female.	Negative.
38	Male.	"

It will be seen from the Table that only negative results were obtained from normal subjects and from individuals suffering from skin and other diseases, with the exception of Mrs. X., who demonstrated a marked reaction. This subject was so sensitive that she reacted to a dilute watery extract of the dyed material. She failed to react to the other dyed fabrics, G, R, B.2, and B.3. The idiosyncrasy could therefore be said to be specific. A patch test performed seven months later (March 15th, 1932) against the dyed fabric B.1—using two further control materials—again provoked an acute positive reaction (Fig. 3). This reaction, however, did not appear until 48 hours after removal of the test. It is interesting to note that the idiosyncrasy appears to be lasting, and that the latent period of the reaction is increased.

Dr. F. M. Rowe, professor of colour chemistry in the University of Leeds, was consulted as to the treatment the material in question had received. At his suggestion a piece of the material was submitted to him for examination, and we wish to express our thanks to him for the following report:—

Examination of the black blouse.—The material is a thin fabric consisting of a cotton warp and a viscose artificial silk weft, such as is commonly used for making blouses or dresses. It was dyed solely with azo direct (substantive) dyes—i.e., the pink dye with which the blouse was dyed originally and the black dye used by the garment dyer both belonged to the class of azo direct dyes. It is not possible to name the actual black dye, but it is clearly of a type manufactured for many years by most firms of dye-makers throughout the world for use extensively for dyeing a variety of textile materials, as well as in garment dyeing. It is a dye which has always been regarded as suitable for use in garment dyeing, and it is clear that the blouse had been dyed in the usual and proper manner. A dye of this kind is only moderately fast, and by steeping a portion of the blouse in water or dilute ammonia, or by prolonged steeping in dilute acetic acid at body heat, coloured solutions were obtained.

Taking the properties of azo direct dyes into consideration, extracts were prepared which would have contained any undesirable organic compound, if such had been present in the blouse. The extracts were submitted to a range of definite and characteristic tests, which undoubtedly would have demonstrated the presence of any compounds, such as meta- or para-diamines, para-amino-phenols, &c. There was not the slightest indication of the presence of any of these organic compounds in the extracts, whereas control tests carried out simultaneously were strongly positive in every case.

It has been suggested that substances such as para-phenylene-diamine, para-aminophenol, are sometimes present in dyed materials (O'Donovan, 1930). McCafferty (1926) states that "many furs, stockings, and dress goods are dyed with para-phenylene-diamine." In Prof. Rowe's opinion, this statement is true as far as dyed furs are concerned, although even in this case the original para-phenylene-diamine or

para-aminophenol used in dyeing should not be present in the finished fur if the subsequent washing has been efficient. It is not true of ordinary textile materials consisting of artificial silks, cotton, natural silk, wool, &c., as they are never dyed by using compounds of the type quoted.

There apparently exists a belief that dermatitis arising from the wearing of a dyed material is caused by some compound such as para-phenylene-diamine, with which the dyes employed are contaminated. In our opinion, this is not true, and we have therefore reported this case in some detail, as we have recently been in touch with cases of dermatitis due to the wearing of materials dyed with normal types of textile dyes. We believe this condition to be more common than the lack of information would suggest.

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PROGRESSIVE POST-OPERATIVE GANGRENE OF THE SKIN

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THIS interesting and apparently rare condition has received little or no attention in the British text-books and surgical literature, although several cases appear from American sources.

In the reported cases it has almost always occurred within a week or two of operation with drainage for acute appendicitis. The process generally starts in part of the wound, or in a stitch hole, as an indurated red area, tender and intensely painful, which advances with temporary remissions and exacerbations. The fully developed gangrenous process appears as a central black leathery slough surrounded by an indurated, red, inflammatory zone, and underlying this is a yellowish, infiltrated area where pus formation is at a minimum. The deeper structures are not affected, the skin and subcutaneous tissue alone being involved. A moderate rise in temperature—to 102° F.—accompanies the gangrene, although the patient does not seem to suffer so much from a severe toxæmia as from continued exhaustion and lack of sleep due to the severe pain.

In most of the recorded cases the accompanying organisms appear to be a combination of non-hæmolytic streptococci and staphylococci. In none of the cases, however, does there appear to be any underlying disease, such as syphilis or diabetes, as a causative agent.

The only treatment of any avail is excision of the entire inflamed and necrotic area, well clear of the area of infiltration, with the diathermy cautery. No other local measure has any influence on the process, which proceeds in an ever-enlarging area till its advance is checked by the above means.

CASE REPORT

A male, aged 62, was seen by me on August 15th, 1931. He gave a history of pain in the right lower abdomen for the past week which had not been severe until August 14th; he had not vomited. Examination revealed a mass about the size of a golf-ball in the right iliac fossa; there was marked tenderness. The diagnosis of acute appendicitis with abscess was made, and operation was carried out under general anæsthesia.

A rectus slide incision was made and a localised mass was found. This was packed off with gauze and an opening made into it. The appendix was found in the mass, swollen, perforated, and gangrenous, with an abscess containing two or three ounces of foul-smelling pus surrounding it. The pus was mopped up and the appendix removed, and the abdomen was closed with a rubber tube drain to the abscess site.

A small amount of pus was discharged from the tube track, and as this rapidly decreased the tube was removed on the sixth day. The remainder of the wound healed without any appreciable amount of suppuration, and for the first ten days following the operation the patient made good progress.

On the tenth day a small red patch of inflammation made its appearance in the upper part of the abdominal incision—i.e., distal to the site of the drainage-tube. This patch at first had all the appearances of an abscess in the abdominal wall and, except for the extreme pain which it occasioned, seemed to be of no great moment.

The area of inflammation continued to spread, and by Sept. 16th was about three inches in diameter with a central black slough and a surrounding red inflammatory zone. On this date the black necrotic area was excised with a scalpel under nitrous oxide anæsthesia, and eusol dressings were applied. There was a brief temporary improvement in the local and general condition of the patient, and the pain was distinctly easier. Soon, however, the inflammatory process continued to advance and, after a short trial of more energetic local treatment—viz., the application of a paste of dried magnesium sulphate and glycerin, combined with the application of artificial sunlight and continuous heat from an electric pad to the wound—further operative treatment was decided upon. Incisions, again under nitrous oxide anæsthesia, were made undercutting the gangrenous flaps and extending into healthy tissue, and a similar local treatment was used. Again there was a temporary improvement. So far, ever since the appearance of the gangrene, the patient's temperature had varied from normal to 102° F., and his general condition, in spite of the severe pain, remained satisfactory.

Despite all treatment, local and general, the gangrenous process continued to advance. In addition to the treatments already mentioned the following were tried without success.

Ichthyol 30 per cent. and iodine solution was used as a local application together with large doses of *potassium iodide* internally, owing to a resemblance between the appearance of the wound and a blastomycosis infection of the skin. *Diphtheria antitoxin* in large doses was given later, as occasionally a true diphtheritic inflammation has been observed in abdominal wounds following operation, and somewhat resembling the process in question. This serum seemed to produce a definite improvement which was, however, short-lived. Other remedies used without avail were *manganese butyrate* and *Edwenil* intramuscularly, and *staphylococcal antivirus* locally.

In about two months from the date of the operation the wound extended superiorly to within 2 inches of the costal margin, inferiorly to within an inch or two of Poupart's ligament, to the right to the anterior axillary line, and to the left above the level of the operation wound to the mammary line on this side. It was noticed that the gangrene did not extend into or across the operation scar, and so the area directly to the left of this was healthy.

The bacteriological report (Oct. 20th) showed that on culture the predominant organism was a streptococcus. There were also a number of colonies of

hæmoglobinophil Gram-negative bacilli which were influenza bacilli, and a few colonies of staphylococci.

By this time the condition appeared so hopeless that treatment to be of any avail had obviously to be of a heroic nature. The fact that the gangrenous process stopped at the line of the abdominal scar suggested that it would be rational to cut a trench well clear of the inflammatory area through the skin into the subcutaneous tissue so that when the inflammation reached to this level a barrier of scar tissue would have formed and so arrest further progress.

Accordingly on Oct. 22nd a trench was cut and a few sloughs were excised with the diathermy cautery. As the gangrene advanced the process was arrested at this line, transgressing it only on the left side and slightly in one small area to the right, and accordingly the diathermy was again used in a similar manner on Nov. 10th. This effectually stopped any further spread, and finally on Nov. 21st, again with a general anæsthetic, the partially separated sloughs were excised so as to hasten the appearance of repair tissue. After this the wound appeared as a clean area upon which skin might be expected to grow from the wound margins. It is interesting to note that an area of skin to the right side, around which we cut the trench, failed to slough and so helped in the repair of the very large wound.

The left-hand photograph shows the wound after the second diathermy operation but before the excision of the sloughs; the one on the right shows it as it finally healed.

At first eusol was used to dress the wound, and later the whole area was covered with broad strips of elastic plaster bandage which were renewed about every ten days, the discharge from the surface easily permeating the bandage and being washed off with cold water and soap. Up to a point this proved a very satisfactory dressing, and the wound showed rapid healing, but for the final stages of repair a boric acid ointment dressing seemed to be the better application.

Two important complications occurred during the stage of healing. Firstly a pneumonia of the right lung developed; this was probably of embolic origin, the patient early expectorating blood. This pneumonia gave rise to a great deal of anxiety, the patient being delirious for about ten days and his general condition far from good. About a fortnight or so after this had cleared up satisfactorily the patient commenced a well-marked "white leg" which necessitated a further six weeks' rest in bed, but which settled satisfactorily.

It had been our intention to skin-graft the large wound after the final diathermy on Nov. 21st, but this operation was delayed by the complications, and as time went on the skin advanced in a most satisfactory manner from the edges of the wound and from islets of epithelium in the base which must have escaped the gangrenous process.

OTHER RECORDS

The following is a brief summary of similar cases of which I have found records.

Cullen [1] reports a case occurring after an appendicectomy with drainage. The gangrenous process was eradicated only after the actively growing edge of the ulcer was excised with the cautery. The organism in his case was a *Streptococcus brevis*.

Christopher's [2] case followed a rib resection for empyema, and the organisms found were a Gram-positive coccus and a Gram-negative bacillus.

In Brewer and Meleny's [3] case, following operation for acute perforated appendix, a streptococcus and a staphylococcus were isolated from the ulcer and these, when injected beneath the skin of animals, produced a gangrenous slough. These authors suggest as an ætiological factor a symbiosis of these organisms, as either separately failed to produce any ulceration.

Shipley [4] has reported a progressive gangrenous ulceration of the abdominal wall following the drainage of an appendix abscess, and in this case a non-hæmolytic streptococcus was isolated. In a similar case reported by Mayeda [5] an organism resembling the diphtheria bacillus was found.

In Cole and Heideman's [6] case a progressive ulcer of the abdominal wall started in a stitch hole 18 days after an operation with drainage for appendicitis. The main interest of this case is the fact that an amœbic organism was found in the pus and edge of the ulcer and, owing to the similarity with the other reported cases, they suggest an amœba rather than a bacterium as the cause of this condition. It is to be noted that their patient had not suffered from dysentery and that, although emetine led to some improvement, the condition only responded satisfactorily to cautery excision.

Freeman [7] gives an account of this interesting complication 12 days after an operation for gall-stones, the origin being from a stitch hole. The necrotic area in this case was never excised, as a nephritis developed and caused the man's death in less than two months from the date of the operation. He states that the microbic cause could not be determined, there being a confusing multitude of micro-organisms. He quotes Tennant's case which developed the condition following operation for ventral hernia and in which the disease was arrested by the use of artificial and direct sunlight.

Smith [8] mentions a case of progressive ulceration of the abdominal wall following appendicectomy, but in this case the Klebs-Löffler bacillus was isolated and the process yielded in the ordinary way to large doses of antitoxin. This is obviously quite a different form of ulceration from the one in question, and is only mentioned as in our case large doses of antitoxin were empirically tried with apparently some temporary success, although no diphtheria bacilli were found.

Baker and Terry [9] give an account of a case where the gangrene followed nine days after operation with drainage for acute appendicitis, and the process was finally arrested only after excision with the electro-cautery.

SUMMARY

A type of wound infection is described which leads to progressive gangrenous ulceration of the skin. The process is most common after operation with drainage for appendicitis and starts as a rule between one and two weeks after the operation, either in a stitch hole or the wound. The affected skin is first red, then finally gangrenous, and the area is intensely painful and tender. The organism most commonly found is a streptococcus, but in at least three of the above cases there has been found in addition a staphylococcus, lending support to the theory of Brewer and Meleny that the ætiology of the condition may be a symbiosis of these two organisms. The only effective treatment is excision of the area by the cautery or diathermy knife.

I am much indebted to Mr. Wilson Hey and Dr. William Dyson for their valuable suggestions regarding the final

treatment adopted; to Dr. G. E. Loveday for the bacteriological examination; and to Dr. C. A. Travers for his constant help and coöperation.

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Clinical and Laboratory Notes

PATENT DUCTUS ARTERIOSUS WITH INFECTIVE ENDOCARDITIS

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THE association of infective endocarditis with congenital heart disease and with patency of the ductus arteriosus has been emphasised by Hamilton and Abbott,[1] Bedford and Boldero,[2] Horder,[3] Libman,[4] Maud Abbott,[5] and others. The following is a brief account of a case in which a patent ductus arteriosus was complicated by an infective endocarditis.

A schoolboy, aged 12, was first seen in 1929 with reference to his heart. When he had measles at the age of 8 he had an accompanying severe bronchitis with cyanosis. Examination of his chest at that time led to the discovery of a hitherto unsuspected cardiac lesion. He had never been a robust child, and was so susceptible to respiratory infections that his attendance at school had only been fitful.

On examination he was found to be undersized for his age, but mentally up to standard. There was no evidence of any external physical defect. Cyanosis and clubbing of the fingers were absent. The pulse was regular and the temperature normal. The tonsils were large and ragged. Pulsation was visible in the second and third left interspaces close to the sternum. The apex-beat was in the fifth space 3¼ inches from the mid-sternal line. A systolic thrill was best felt in the second left intercostal space. Gerhardt's ribbon dullness was not detected. On auscultation a bruit of the continuous or machinery type was present and was best heard close to the sternum in the second left interspace. The pulmonary second sound was reduplicated. The spleen could not be felt. Pulsation was present in the abdominal aorta and femoral vessels. Radiological examination showed that the heart was enlarged to the right and left. There was a prominent bulge on the left middle arc of the cardiac silhouette, which vigorously pulsated. A diagnosis of patent ductus arteriosus was made.

Final illness.—In June, 1930, six months after the previous examination, he was admitted to hospital on account of a rapidly developing anæmia, with weakness and pyrexia. The child was in a septicæmic state with occasional rigors, sweats, and an afternoon temperature of 102–103° F. He was extremely pale. There was no clubbing of the fingers. The physical signs were essentially the same as at the last examination, in that a machinery murmur was still present in the second left interspace. In addition a diastolic bruit was heard down the left margin of the sternum and at the apex. Liver and spleen were both palpable, the latter extending two fingers' breadth below the costal margin. There was dullness at both bases, with diminished breath sounds on the right and absent breath sounds on the left. Urine contained no blood or casts, but albumin was present. A blood count showed 2,300,000 red cells and 12,100 white cells. A blood culture gave a growth of the *Streptococcus viridans*. A diagnosis was made of a patent ductus arteriosus with superadded infective endocarditis. The patient died the day after admission.

At autopsy free fluid was found in both pleural cavities and a little fluid in the pericardium. The lungs were indurated and œdematous. The heart was enlarged, the left ventricle being proportionately more so than the right. The aorta was slightly larger in calibre than the pulmonary artery. A patent ductus arteriosus was present, and of sufficient size to admit a steel knitting needle. At its pulmonary orifice and extending along its lumen were soft vegetations, and these extended in addition a short distance down the pulmonary artery towards the pulmonary valve. A further small mass of vegetations were present on the wall of the pulmonary artery a little above the pulmonary valve. The pulmonary cusps were normal and devoid of vegetations. At the aortic orifice of the ductus there were no vegetations. Masses of soft friable vegetations were present on the aortic cusps. The remaining valves of the heart were apparently healthy. There was no other cardiovascular abnormality. The spleen was considerably more enlarged than clinical examination had revealed.

Libman considered that a patent ductus arteriosus was the most important congenital defect related to an infective endocarditis, and Bedford and Boldero found that infective endocarditis affecting the patent ductus arteriosus occurred more frequently than in any other congenital lesion in 36 cases reviewed by them. This case is interesting in that whilst the wall of the pulmonary artery and the pulmonary orifice of the ductus were involved, the pulmonary cusps were intact and healthy. From published records it appears that only rarely are the pulmonary cusps involved in the infective process. The aortic valves in this case bore masses of vegetations but the wall of the aorta was free of any lesion. Horder describes a similar case in which the pulmonary artery was involved together with the aortic valves, the pulmonary valve being exempt from any lesion. Although in the above case it seems probable that infection occurred first of all at the pulmonary end of the ductus and spread down the artery wall, it is difficult to explain the involvement of the aortic valves except on the assumption of embolic spread of infection to the aortic cusps.

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PATENT DUCTUS ARTERIOSUS

WITH A SUPERIMPOSED SUBACUTE BACTERIAL ENDOCARDITIS

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A SUFFICIENT number of cases of patent ductus arteriosus complicated by a superimposed infective endocarditis have been published to show that patients with this congenital defect, like all those with congenital heart disease, are in constant danger of being overtaken by this catastrophe (Horder,[1] Hamilton and Abbott,[2] and Boldero and Bedford[3]). However, the clinical features which at first led to a mistaken diagnosis of pulmonary tuberculosis make the following case worthy of record.

A woman, aged 35, was admitted to hospital with a history of "influenza" seven months ago, since when she had suffered from vague ill-health. She complained of persistent cough, pain in the back of the chest, dyspnœa on exertion, and general malaise. Nothing significant in the family history and no previous illnesses of note.

On examination the heart was found to be slightly enlarged to the left, and there was a strip of dullness along the left border of the sternum in the second and third interspaces. At the pulmonary area there was a loud continuous humming-top murmur and an accentuation of the second sound. A pleural rub was heard at the left base posteriorly. There was a trace of albumin in the urine. The temperature was irregular, at times reaching 101° F., and there were frequent profuse sweats. The blood count showed a leucopenia with a mild secondary anæmia. Sputum examination revealed no tubercle bacilli.

A diagnosis of patent ductus arteriosus with complicating pulmonary tuberculosis was made, and the patient transferred to a sanatorium. Three months later she developed

hæmaturia and was readmitted to hospital. The physical signs found were much the same as on the previous admission. Signs in the lungs varied, patches of harsh breath sounds with râles, and pleural friction being heard in parts of the chest from time to time. During the next seven months the fingers became clubbed, there was almost constant hæmaturia and repeated small hæmoptyses, the diastolic part of the humming-top murmur disappeared, and an aortic regurgitant murmur was heard down the left sternal border. The temperature ran a very irregular course, but was never normal for more than three consecutive days. Blood culture showed a growth of *Streptococcus viridans* on two occasions. The patient gradually developed the café-au-lait pigmentation of subacute bacterial endocarditis, and finally died of renal incompetence about eighteen months after the first onset of symptoms. Towards the end the spleen became palpable.

Post-mortem examination revealed a patent ductus arteriosus occluded by vegetations at its opening into the pulmonary artery. The pulmonary and tricuspid valves were normal. There was a large mass of vegetations on the aortic valve extending down to the aortic cusp of the mitral valve. There were pleural adhesions over both lungs, and multiple infarcts in both lungs, the kidneys, and the spleen. Culture of the heart's blood and splenic puncture showed a streptococcus similar to that recovered during life.

The main interest in this case, apart from the association of a congenital cardiac malformation with subacute bacterial endocarditis, is the fact that the repeated small pulmonary infarctions were responsible for the mistaken diagnosis of pulmonary tuberculosis until embolic phenomena in the kidneys revealed the true nature of the condition.

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A CASE OF ANÆMIA DURING PREGNANCY

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A WOMAN, aged 21, came into the Sussex Maternity and Women's Hospital under Dr. J. Shardlow on April 18th, 1932, complaining of swelling of the feet and face, and increasing pallor.

History of illness.—There was no history of anæmia in any relative. The patient had been a perfectly healthy subject, except for attacks, during several preceding years, of slight substernal pain relieved by ordinary measures. The indigestion had been worse for the last three to four months. There was no history of vomiting, diarrhœa, or sore tongue, and none of anæmia. The diet had, so far as was ascertained, been adequate in all essentials, and was in fact, for the class of patient, unusually full. The date of the last menstrual period was not known with accuracy by the patient, but it was believed to have been eight months previously. For six months she had suffered from swelling of the feet, without headache or albuminuria, while for some months she had complained of giddiness.

During the previous 12 days the face had become puffy, and the patient had been confined to bed at home for ten days on a fluid diet with low protein intake. The œdema had to some extent improved on this treatment, but pallor became suddenly noticeable seven days before admission, coincidently with the decrease in œdema, and grew rapidly worse.

Examination.—The patient was a short, well-nourished girl. The face was puffy, and there was considerable œdema of legs and vulva. The feature which at once presented itself to the eye of the examiner was the intense pallor of the face and mucous membranes. Some slight icterus was also noticeable. The tongue was not furred and showed no glossitis. There was no sign of stomatitis.

Of lymph glands there was none available to palpation. Examination of the abdomen disclosed a pregnancy of eight months' duration, with the head not as yet engaged. The liver was not felt, but the tip of the spleen could be palpated two fingers' breadth below the costal margin. Over the præcordium there was a systolic murmur and thrill. Blood pressure was 148/74.

Investigations.—0·5 part of albumin per 1000 was present in the urine, together with a fair number of pus cells and a few red blood corpuscles. Urobilin was found to be abundant. Of blood tests, the van den Bergh gave a direct negative reaction, while on indirect test 0·5 unit was discovered (April 20th). The Wassermann reaction was negative. Blood examination on April 19th gave the following result:—

Red cells	1,095,000	Polymorphs	79%
White cells	11,400	Lymphocytes	16%
Hæmoglobin	29%	Monocytes	3%
Colour-index	1·3	Eosinophils	1%
		Myelocytes	1%

The red cells showed much anisocytosis, and poikilocytosis, extreme polychromasia, and punctate basophilia. Some nucleated red cells were present, all normoblasts.

Treatment.—On April 19th, the day after admission, the patient began to vomit and complained of epigastric pain, and she continued to vomit until the 25th, making it difficult to maintain any intake of liver extract. On the 21st small hæmorrhages were noticed over the sternum, and on the right forearm and left leg. On the same day treatment by oral administration of liver extract (Liveroid and B.D.H.) was instituted, and total daily amounts equal in value to ½ lb. of raw liver were retained in spite of the vomiting. A diet as full as could be taken was allowed. Epistaxis occurred on the 22nd and again on the 23rd; 2 c.cm. of campolon liver extract was given intragluteally on the 25th owing to the vomiting excited after oral administration. The injections were continued daily.

Labour and puerperium.—Labour pains began on the 25th, but were very slight, becoming severe the following day. During the second stage air-hunger became intense. Forceps were therefore applied under ether, in analgesic dose only, and a male fœtus of seven and a half to eight months' development in a state of early maceration was removed. There was no sign of anæmia in the child, the mucous membrane being of a normally deep colour. Almost no blood loss attended the birth of the child or placenta, but afterwards the patient developed more œdema round the eyes, extreme orthopnœa, dizziness, and præcordial pain. The temperature rose the same evening, and continued in slight degree until discharge with nothing beyond the anæmia to account for it. On the 21st the liver and spleen were each palpable two fingers' breadth below the costal margin. Dyspnœa on the slightest effort remained for a few days longer, and the heart-rate became very rapid.

Further course of illness.—On April 30th iron in the form of Blaud's pill was given in small doses (grs. x b.i.d.), and as vomiting had ceased the patient was again placed on B.D.H. liver extract (1 capsule daily by mouth). On the morning of the 30th the patient had an attack of blueness with unconsciousness, and on recovery she complained of loss of power in the arms. During the afternoon she developed a maniacal attack, being apparently unconscious of the nature of her surroundings, and filling the ward with loud screams and cries. She became rational, however, before the following day.

The heart, when examined on May 2nd, was found to be showing reduplication of the first sound, with thrill, very loud murmurs, and a rapid rate. The liver edge was extremely tender, suggesting a failing myocardium. The condition caused anxiety for several days. By May 4th, however, the patient was beginning to eat well, though she occasionally vomited after food. She complained of spots before the eyes, and occasions when "everything went black."

After this date improvement gradually set in, and after May 22nd no more liver was given. She thereafter made an uninterrupted recovery, apart from one further attack of epistaxis. When the patient returned home on the 27th the liver was just palpable, and hardly tender, and the spleen could be felt two fingers' breadth below the costal margin.

Iron or liver treatment was not undertaken by the patient after discharge, but when she was seen on July 31st, 1932, there was little sign of anæmia, the colour of the mucous membrane and cheeks being excellent. Blood examination on Sept. 30th gave the following result:—

Red cells	4,490,000	Polymorphs	69%
White cells	5,220	Lymphocytes	23%
Hb.	84%	Monocytes	8%
C.I	0·9		

The red cells were normal in shape and size, and none with nuclei was seen.

I wish to express my thanks to Dr. Shardlow for permission to publish this case, and to Dr. H. M. Galt and Dr. L. R. Janes, of the Royal Sussex County Hospital, for many of the pathological investigations.

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AT a joint meeting of these sections on Jan. 10th, with Dr. H. MORLEY FLETCHER in the chair, a discussion on the

Treatment of the Anæmias

was opened by Dr. L. J. WITTS. In the treatment of microcytic hypochromic anæmias, he said, different chemical combinations of iron had been found to vary greatly in therapeutic activity. The evaluation of remedies was difficult in these anæmias; there was no short cut corresponding to the reticulocyte enumeration in pernicious anæmia. The reticulocyte crisis in a case of microcytic anæmia was prolonged, and the reticulocytes might remain at a level of 2 or 3 per cent. until the anæmia was approaching complete repair. The only way to judge the value of a remedy in these cases was to observe the result on the patient. The compounds of iron, in order of potency, were: ferrous salts, scale preparations, ferric salts, and organic compounds. Organic preparations were almost without effect; the ferrous salts appeared to be much the most potent, especially when achlorhydria was present. Iron and ammonium citrate could be given in doses of grs. xl. a day. If Blaud's pill was given the patient should be advised to swallow the pill crushed. He had endeavoured to determine the effective dose of Blaud's pill, working with series of cases of microcytic anæmia, and had concluded from observation of a series of 18 cases that the smallest dose which could be relied on to give uniformly successful results was grs. xlv. a day. No arsenic, copper, or other inorganic salts were given to these patients, and no liver; a few were given hydrochloric acid. He was convinced that there was no need to add any of these substances to the ordinary diet of an adult in order to make iron therapy effective. Whatever preparation of iron was used, occasional refractory cases would be found which required large doses, but 80 per cent. of microcytic anæmias responded to as little as grs. xv. of Blaud's pill a day. Now that a new preparation of iron for injection had been included in the B.P.C. there would be opportunities for testing its value. The therapeutic dose of iron and ammonium citrate by mouth was 800 mg., and in the case recorded by Hurst in which toxic symptoms arose the dose had been 2100 mg. The therapeutic dose of iron by injection was 16–32 mg., whereas the toxic dose was 48 mg.; the margin of safety was therefore narrow, and he had preferred to avoid the use of iron by injection for that reason. With anæmia occurring at the menopause menorrhagia might nullify the effects of medical treatment; in such cases induction of an artificial menopause produced good results, with disappearance of the anæmia and associated symptoms. In the treatment of pernicious anæmia the cost of remedies was often overlooked. English calf's liver cost 15*d.* a day, and imported calf's liver 8*d.* Dry liver extracts were unpalatable and expensive (36*d.* a day); fluid extracts cost, on an average, 20*d.* a day. Liver extract for intramuscular injection worked out at 10*d.* a day, and was therefore not an extravagance when used on emergency cases, and was much more effective in such cases than liver given by mouth. Desiccated stomach of British manufacture cost 6*d.* a day, though an Anglo-American preparation cost 48*d.* a day. The high claims made for desiccated stomach had been fully confirmed, and it was much the most effective as well as the cheapest treatment for pernicious anæmia at the present time.

RESPONSE IN ANÆMIAS OF DIFFERENT TYPES

Prof. L. S. P. DAVIDSON classified anæmias as follows: (1) anæmias due to nutritional defects; (2) post-hæmorrhagic anæmias; (3) hæmolytic anæmias. It was a mistake, he thought, to treat pernicious anæmia with liver extract or hog's stomach extract alone, once the relapsed stage was past. During the period when the blood count was falling—usually about six months—iron from the hæmolysed blood was retained in the organs. In the recuperative stage, however, as he had been able to show from an autopsy on one of his patients who had been run over, there was no free iron in the organs. He thought, therefore, that patients needed whole liver during the recovery period. He had recently been able to show that fish livers contained a potent substance for the cure of pernicious anæmia; dramatic results had been obtained with extracts prepared from the livers of various fish including cod, haddock, whiting, and monk fish. Extracts made from these sources could be prepared at a much lower cost than animal liver extracts. He had tried the effects of vitamin B, in the form of Marmite, on cases of pernicious anæmia, and had had one or two marked successes with a dosage of ʒ i.–ii. daily, but many failures. Larger doses of the preparation were unpalatable, so that it was unlikely that it would take the place of liver extract. He had obtained excellent results in microcytic anæmia with solid ferrous chloride in daily dosage of grs. v.; this small dose was as effective as Blaud's pill in doses of grs. lx. daily. A preparation of solid ferrous chloride on the market, however, cost the patient 4*s.* a day as compared with 4*d.* a day for Blaud's pill.

EXHAUSTION OF THE BLOOD-FORMING TISSUES

Dr. H. LETHEBY TIDY thought that, in some cases, exhaustion of the blood-forming tissues might be responsible for the exaggeration of anæmia. He was not referring, he said, to aplastic anæmias. In the type of case he meant the life of the patient might be saved by a blood transfusion. Exhaustion of the hæmopoietic system might be responsible for the condition called "acute febrile anæmia." Cases of polycythæmia, when they developed anæmia, as they sometimes did, might also be examples of such exhaustion. Patients with primary purpura sometimes developed anæmia before any hæmorrhages had taken place; certain cases of pernicious anæmia failed to react to any treatment; and the pernicious anæmia of pregnancy developed without any relation to loss of blood. Some of these were cases in which there might well be acute exhaustion of the hæmopoietic system, and blood transfusion might start them on the way to recovery.

Prof. F. S. LANGMEAD had obtained good results in the microcytic anæmias with Blaud's pill in doses of grs. cl. a day, given in gelatin capsules containing grs. xvii., three capsules thrice daily. He had wondered why the amount of iron which had to be given to be effective was so far in excess of the small amount the body actually needed. He had consulted Dr. R. B. Bourdillon who thought it was associated

with the pH of the duodenal contents; where achlorhydria was present, the pH would naturally be unduly high. Achlorhydria was a common factor in those cases which benefited by iron therapy. Perhaps iron in ordinary doses might be equally effective in their treatment if given in association with hydrochloric acid or salts such as ammonium chloride or sodium dihydrogen phosphate, which would tend to lower the pH in the duodenum.

Dr. DOROTHY HARE described a case of microcytic anæmia in which injections of iron had been given for 19 days without benefit to the condition; the patient was then put on iron and ammonium citrate, with immediate and dramatic improvement. She concluded that in some cases the injection of iron was unsatisfactory, or the results were so long delayed that it was not worth while waiting for them.

Dr. JOHN WILKINSON agreed that hog's stomach extract was the best preparation for the treatment of pernicious anæmia. He and his colleagues had been investigating the active principle in hog's stomach and had obtained a good many fractions which appeared to be active. In critically ill cases parenteral liver therapy gave the quickest results. Unfortunately the preparations of liver for injection on the market were extremely variable in their action. Many hog's stomach preparations, too, even though made by reliable firms, were inactive; but once a firm had learned to prepare stomach extract properly the preparations they put out were uniform. This was not the case with preparations of liver for injection. He had tested the effects of copper and manganese in microcytic anæmia, individually and together, and with iron, and had reached the conclusion that better results were obtained with iron alone in most cases. He doubted whether sufficient acid could ever be given by mouth to alter the pH of the duodenum, or affect the absorption of iron.

Dr. SINCLAIR MILLER said that many elderly people with pernicious anæmia found a weekly or fortnightly injection preferable to taking liver or stomach extract daily by mouth; they maintained their hæmoglobin well on this method of treatment.

Dr. E. N. ALLOTT asked whether liver therapy possibly favoured the development of nervous symptoms in patients with pernicious anæmia, and described two cases in which there had been no nervous symptoms beyond slight tingling of the fingers, before liver treatment was begun; subsequently the patients had complained of marked numbness of the fingers which nothing seemed to relieve.

The PRESIDENT asked whether whale livers had been investigated in connexion with the treatment of pernicious anæmia.

REPLY

In replying Dr. WITTS said that if symptoms of subacute combined degeneration developed the dosage of liver or stomach extract must be increased until there was improvement. If the patient was suffering from a shortage of iron during the recuperative stage of pernicious anæmia he should be given iron by mouth, not liver. No one would go on eating liver twice a day for life, and most patients ate just enough to keep them alive, but not sufficient to prevent the development of subacute combined degeneration. This might account for the increased incidence of nervous symptoms. He had seen four patients die following blood transfusion in acute anæmic breakdown, and thought it dangerous treatment. Prof. DAVIDSON thought that there had been a decided increase in the incidence of subacute combined degeneration since the introduction of liver therapy. He had only been able to obtain very slight improvement in the nervous symptoms by enormous doses of liver extract.

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND

A MEETING of this society was held at University College Hospital medical school on Jan. 6th and 7th, with Prof. A. E. BOYCOTT and Prof. C. C. OKELL in the chair.

T. SHENNAN and W. NELSON (Aberdeen) described a cheap and efficient mounting medium for museum specimens composed of liquid glucose, sodium acetate, and thymol.—G. R. CAMERON and C. L. OAKLEY (London) discussed the autolysis and destruction of liver tissue transferred to the omentum, and pointed out that the bile-ducts survived and sometimes proliferated.—R. D. PASSEY and A. LEESE (Leeds) found that kidney placed in the pleural cavity stimulated the growth of the lining epithelium of the superficial lung alveoli.—R. D. PASSEY and J. McD. HOLMES (Leeds) brought forward a number of statistics of the occurrence of carcinoma of the lung, and suggested that the apparent increase in recent years was really due to enlargement of the hospital populations and the activities of the tuberculosis dispensaries.—W. CRAMER (London) had worked out the details of the nephritis found in rats fed on a diet deficient in magnesium: it begins in the glomeruli, probably owing to loss of capillary tone, and leads ultimately to considerable fibrosis.—J. G. GREENFIELD (London) described two examples in young children of an undescribed form of cerebral sclerosis beginning with a degeneration of the interfascicular oligodendroglia.—M. J. STEWART (Leeds) showed some remarkable small arteries found in a fibrous pleura in which there was great overgrowth of the longitudinal muscle-fibres of the intima.—R. MUIR and J. F. HEGGIE (Glasgow) found no hæmoglobin in the bile after the intravenous injection of laked blood; it was, however, present in various toxic conditions produced by phosphorus, phenylhydrazine, saponin, hæmolytic serum, or aniline.—R. MUIR and A. C. AITKENHEAD (Glasgow) found that intraduct carcinoma of the breast is often obliterated by fibrosis which fills up the whole duct.—J. H. DIBLE (Liverpool) described an infant with a penis, a uterus, and a neuroblastoma of the adrenal.—W. M. CROFTON (Dublin) made some remarks on the biology of the cancer cell, and on sarcomatosis in the rat.

K. M. SMITH (Cambridge) gave an account of his X and Y plant viruses, their different properties, the symptoms and lesions they produce respectively and in combination, and their separation by a transmitting aphis.—W. W. C. TOPLEY (London) had repeatedly vaccinated mice with *Bact. ærtrycke*, and then tested their immunity by the inoculation of live cultures. Up to the sixth vaccination they became progressively more resistant, afterwards more susceptible again.—P. HARTLEY and P. BRUCE WHITE (London) described a simple practical method of drying antigens and antibodies in a vacuum with phosphorus pentoxide, by which excellent permanent preparations are obtained.—E. HINDLE and P. BRUCE WHITE (London) gave an account of the preparation of a soluble specific substance from cultures of leptospiras which seemed likely to be of considerable value in separating and identifying the different species and serological

types.—K. W. GOADBY (London) described the necrotic action of an acetone-soluble lipoid from staphylococcus.—J. GORDON (Leeds) discussed the analysis of the bactericidal action of normal serum.—D. MCCLEAN and W. T. J. MORGAN (London) showed that the addition of testicular extract to the injection considerably promoted the absorption of antitoxin into the blood.—G. N. BOXHALL and F. C. HAPPOLD (Leeds) presented some notes on the cultivation of leptomonas and leishmania.—MARY M. BARRATT (London) described some curious types of diphtheroid bacilli obtained from the nasopharynx.—C. A. MCGAUGHEY (Manchester) demonstrated a number of variants which arose in cultures of Welch's bacillus.—S. L. CUMMINS (Cardiff) described an interesting imitation of the tubercle bacillus isolated from sputum.—C. E. DUKES (London) discussed the conditions favouring urinary infection after post-operative retention.

Among the exhibits were:—J. C. G. LEDINGHAM (London): the growth phases of the organism of pleuro-pneumonia. R. J. V. PULVERTAFT (London): bacterial fluorescence; radium burn of aorta; implantation dermoid in bone; carcinoma of ureter. A. BAKER, E. LEPPER, and D. VAUX (London): granulosal cell tumours and folliculoma of ovary. E. LEPPER (London): macroscopic sections of breasts. C. PRICE-JONES (London): blood curves. J. A. BOYCOTT (London): a Pijper apparatus for blood corpuscles. D. VAUX and G. HADFIELD (London): tumours of parathyroid and pleura. J. M. ROSS (London): false mycelium in spleen. G. P. WRIGHT (London): angioma of heart. M. L. ROSENHEIM (London): periarteritis nodosa. C. C. CHOYCE (London): radium burn of œsophagus. T. S. KEITH (London): extreme dilatation of left auricle: method of mapping the heart post mortem. J. W. S. BLACKLOCK (Glasgow): dermoid cyst in spinal cord; lobulated spleen in infant. J. F. HEGGIE (Glasgow): hepato-lienography with thorotrast. R. P. MATHERS and D. F. CAPPELL (Dundee): rhabdomyoma of soft palate. T. TANIGUCHI (Japan): preparations of the parasites of vaccinia and variola. J. S. FOULDS (London): umbilical endometrioma; myeloma of skull. J. W. MCNEE (London): reticulo-endotheliosis of spleen. R. T. GRANT (London): arterial angioma causing heart-block. W. N. GOLDSMITH (London): mycosis fungoides.

LIVERPOOL MEDICAL INSTITUTION

AT a meeting of this institution on Dec. 15th, with Prof. R. E. KELLY, the President, in the chair, a discussion on the

Avoidable Wastage Resulting from Industrial Injuries

was opened by Dr. H. E. MOORE, surgeon to the L.M.S. Railway. He produced figures showing long incapacity periods amongst men for whom all active treatment had ceased—often for months—and who might have returned to their former occupations after very brief periods if real active treatment had been given at an early stage. Hospital treatment was not sufficiently intensive or persistent; passive treatment, in the form of massage and the like, was in many cases a pure waste of time and energy; the coöperation of the patient in active treatment, which was the biggest factor in recovery, was generally neglected; surgical supervision, which was necessary to give the stimulus and confidence leading to coöperation, was too spasmodic to be effective; men were discharged from treatment before real proof of function had been obtained; and the mental factor present in all and prominent in many was usually ignored.

In National Health Insurance practice, he believed, there was no active treatment available for the many men who needed it for their recovery, and he thought that under the present conditions of panel practice such treatment was impossible. He urged that both the hospitals and the National Health Insurance authorities, who received large contributions from industry, should give this problem their serious attention with a view to forming some service which would reduce the present colossal wastage to reasonable proportions. It seemed to him that the traumatic cases must be completely separated from the ordinary work of the general hospitals. Traumatic centres should be established throughout the country, with specially trained resident personnel, controlled by orthopædic surgeons who had made a specialty of this class of work, and free facilities should be provided for treatment in these centres for all panel cases which were proving resistant or which required active treatment for their recovery.

Mr. R. WATSON JONES agreed with Dr. Moore that far too few workmen recovered so completely from industrial injury as to be capable of early and full re-employment. The traumatic surgeon should solve the problem primarily by raising the standard of fracture treatment, and by remaining satisfied with no result other than a limb indistinguishable from normal. Too often in the past minor degrees of angulation, slight displacements, and the lesser degrees of shortening had been accepted as quite satisfactory results, and only too frequently peri-articular adhesion formation, lateral instability of joints, hypotonicity of muscles, and recurring swelling of limbs had been entirely overlooked. The limb which was indistinguishable from normal could be secured in the great majority of fracture cases by conservative methods, provided that the surgeon placed great reliance on the control of post-reduction radiograms, and showed a greater willingness to remanipulate when necessary a second or a third time. It was equally important that disuse changes in muscles, joints, and circulation should be anticipated and prevented by early functional activity.

Few workmen deliberately malingered from the early days of an injury solely with the object of making money. On the other hand, if minor disabilities were allowed to remain, no workman could be blamed for fearing that his incapacity might increase with the strains of work, or that his incapacity, however slight, might lead to his early discharge on the grounds of inefficiency. The exaggeration and malingering which resulted could have been avoided by achieving a more perfect result. Traumatic neurasthenia and other functional disturbances should often be regarded as avoidable complications of industrial injury. They were due to excessive hospitalisation, or to the adoption of passive methods of treatment such as massage, splints, and apparatus, in place of exercises practised by the man himself, or better still, of occupational activity from the early days of the injury.

Mr. BRYAN MCFARLAND said that segregation of fractures was not a complete remedy for the wastage. It was essential to maintain close liaison with a general hospital with its minor injuries. The cases with trivial injuries were often those in which there was delay in returning to full work. Moreover, team-work was essential in dealing with patients who might have at one time damage to an eye, a spleen, and a femur. Pending the building up of some ideal scheme, such as was suggested at Alder Hey, a very great deal could be done at once by close coöperation between the employer and the surgeon responsible. If an employer would communicate with the surgeon immediately and would work with him, there would be none of the gaps which Dr. Moore had shown to

be the cause of wastage. Thus the legal implications would be avoided. For whatever might be said to the contrary, the thought of possible compensation for their injury was immediately present in the minds of certain men, and once they had "started proceedings" a cure was unattainable. Even when cured how could they be proved fit for work? In Liverpool it seemed to be increasingly difficult to prove that a fit man was fit. With adequate early collaboration of surgeon and employer such proceedings would be short-circuited.

It was Mr. McFarland's experience at the David Lewis Northern Hospital that those firms who carried their own insurance coöperated most effectively and with a minimum of wastage; attempts to obtain the coöperation of an insured firm to curtail the unemployable period, or to reduce ultimate disability, were met with the reply "we are insured," while the insurance company answered apathetically, "we are covered." If the employers would do their share, doctors would most willingly assist them.

Dr. J. BERKSON said that just as payment for sickness and payment for claims under the Workmen's Compensation Act were separated, so should the treatment of industrial injuries be separated from the treatment of ordinary illness. Patients with industrial injuries having massage treatment came to their panel doctor for a certificate of incapacity, and when he wished to sign them off as fit, he was told that the patient had to go back to the out-patient department in four weeks, and therefore was not fit to start work. In some cases that went on for months. If the panel practitioner were not allowed to give certificates of incapacity when his patient was attending for treatment at hospital one quite important cause of wastage would be got rid of.

Mr. H. R. BICKERTON thought that employers should not be asked to shoulder any more financial burdens until the profession was satisfied that they were getting full value for the money they were now contributing to the health services of the country. In some districts much had been done to lower the cost of litigation under the Workmen's Compensation Act without hardship to the disputants, and he urged medical men to coöperate with him with this aim in view. The junior men at the Bar might oppose it, but he knew that the senior men would support the medical profession. Many cases as conducted to-day only brought discredit on the medical witnesses and injustice to the genuine workmen.

Dr. K. COBBAN, speaking as a general practitioner in a mining district where there were many accidents, said it had been his experience that most patients were eager to get back to work. He did not think that the treatment of the long-standing cases could be carried out by the general practitioner, for it necessitated attendance at hospital; nor did he think that the usual massage treatment carried out at present was efficacious. He would advocate its replacement to a large extent by active movements of the injured parts, and especially by curative workshops.

LUCY BALDWIN MATERNITY HOSPITAL.—Last week Mrs. Stanley Baldwin opened an extension of this Stourport hospital. Sir Julien Cahn, who paid the entire cost of the original building and its equipment, has also borne the cost of the enlargement which increases the number of beds from 11 to 16. The accommodation is divided into one eight-bed ward, one four-bed ward, two one-bed private wards, and two isolation beds. Additional bedrooms have been provided for the nurses and the nursery has been enlarged.

NEW INVENTIONS

METRI-CAUTERY FOR INFECTED CORNEAL ULCERS

THIS instrument is a modification of the design of Prof. Wessely and has been proved valuable (*a*) in arresting septic corneal ulcers that have not yet developed hypopyon; (*b*) in checking the progress of severe hypopyon ulcers and leaving even in advanced cases a very moderate scarring, allowing sometimes a surprising degree of vision. The point should be heated from the main electric supply till

the thermometer registers 75° C.; it should not be applied over 85° C. A gentle stroking of the surface of the ulcer for a few seconds usually suffices. The process may be repeated later if any fresh advance is noted, but then, as a rule, only to the advancing edge. The instrument has proved in my hands much less damaging than the actual cautery even at a dull red heat and by the "approach" method—i.e., not touching.

The instrument is made by Messrs. Down Bros., St. Thomas's-street, London, S.E.

A. CHRISTIE REID, M.D. Aberd.

A PLIABLE RULE

CLINICIANS have often found difficulty in the accurate measurement of lesions occurring on curved or obscured surfaces in the mouth, pharynx, and other sites which are inaccessible to the ordinary ruler. To facilitate such investigation I have designed a pliable rule as shown in the accompanying figure. To determine the size of a lesion bend the pliable wire to the desired curve, lay the blunt point on the

further edge of the growth, and slide the outer tubing until it is in contact with the nearer edge. Then read the measurement off on the handle. Suitable finger-rings can be provided, and also small slidable indicators for recording several measurements during operations. The instrument is constructed entirely of metal, and it can be easily sterilised. The rule is now being used successfully at the Manchester and District Radium Institute.

Mr. Charles F. Thackray, Park-street, Leeds, is the maker.

DAVID A. HERD, L.R.C.P., L.R.C.S. Edin.

REVIEWS AND NOTICES OF BOOKS

Children's Tonsils In or Out

By ALBERT D. KAISER, M.D., Chief Pediatrician, Rochester General Hospital, N.Y. London: J. B. Lippincott Company. 1932. Pp. 307. 21*s*.

IN order to collect information which might strengthen, or weaken, the belief that a child's development may be retarded by the presence of tonsils and adenoids, and that improvement in the health is likely to follow their removal, Dr. Kaiser has undertaken to study the effect of operation on a large group of children by observation over a period of ten years, and by comparison over a similar period with children whose tonsils and adenoids had not been removed. This has entailed an immense amount of labour, follow-up studies having been made on nearly 5000 children. In two preliminary chapters Dr. Konrad E. Birkhaug, associate professor of bacteriology in the University of Rochester, discusses the anatomy, physiology, and bacteriology of the tonsils; he quotes a large number of bacteriological reports and finds that the *Streptococcus hæmolyticus* is very common in apparently healthy throats, not only on the surface of the tonsils, but in the crypts, and he mentions the work in England of J. Ramsay and C. M. Pearce, who found the hæmolytic streptococcus in 78 per cent. of cases examined by their method of tonsil puncture. A. L. Bloomfield and A. R. Felty also found, during an epidemic of tonsillitis among nurses at the Johns Hopkins Hospital, that hæmolytic streptococci were the predominating organisms, but that the number of colonies obtained from any individual case bore no relation to the severity of the clinical symptoms and signs. Such findings make it difficult to accept bacteriological evidence of tonsillar disease. Dr. Kaiser then considers the effects of operation. He finds that uniformly good results can be expected from the removal of hypertrophied or infected adenoids on children who have nasal obstruction or catarrhal or suppurative otitis media.

The greater part of the book, however, is taken up by the analysis of the results of tonsillectomy on the incidence of a large number of diseased conditions. It must suffice here to enumerate them: sore-throat, the common cold, laryngitis, bronchitis and pneumonia, cervical adenitis, ear infections, sinusitis, scarlet fever, diphtheria and other infectious fevers, rheumatism, chorea and heart disease, nephritis and pyelitis, tuberculosis, dental caries, asthma and hay-fever, malnutrition, anorexia, cyclic vomiting, diabetes, general intelligence, and mental deficiency. A few of his conclusions are noteworthy. On the important question of the rheumatic affections, he finds that about 30 per cent. fewer cases of rheumatism occur in children whose tonsils have been removed than in control children where no operation was performed, but that, when a rheumatic infection has once manifested itself, tonsillectomy does not safeguard the child against recurrent attacks. The occurrence of nephritis is somewhat less in tonsillectomised than in unoperated children, though the difference is not great enough to warrant much enthusiasm. The removal of infected tonsils after an attack of acute nephritis is to be desired. The effect of tonsillectomy upon the incidence of scarlet fever is statistically insignificant and, in children whose tonsils have been removed, there is no evidence that the disease is less severe or less likely to cause complications; but a child with his tonsils removed is definitely less susceptible to diphtheria, and the operation hastens the elimination of organisms from the throat of the diphtheria carrier. There is little effect on the occurrence of measles, chicken-pox, mumps, or poliomyelitis; or, somewhat unexpectedly, on the incidence of repeated attacks of unexplained fever. In contradistinction to removal of adenoids, tonsillectomy after the fifth year offers very little protection against primary and recurrent infections of the ear, and mastoid involvement after otitis media occurs with equal frequency in the presence and in the absence of tonsils.

After due allowance has been made for the limitations of the statistical method the book remains a monument to the author's industry and research. In spite of its flippant title, it is a serious contribution to medicine, which will greatly assist in confirming or modifying our views on the value of tonsillectomy in individual cases.

Effets éloignés du pneumothorax thérapeutique

By L. DE WECK, Médecin-Chef du Sanatorium Victoria (Montana). Paris: Masson et Cie. 1932. Pp. 129. Fr.16.

Dr. de Weck's work is based on the study of 51 patients who completed a course of treatment by artificial pneumothorax during the period 1911 to 1920. This record of the durable relief or lasting cure of consumptives by collapse therapy should help to dispel the doubts still expressed as to its permanent value, and should encourage those whose faith in pneumothorax treatment has not yet the support of long experience. The book is more than a mere record of therapeutic successes. Dr. de Weck has made a noteworthy contribution to the study of the "de-inflation" period, of the response of lungs and pleura to the negative pressure which results when refills are discontinued, and of the complications which sometimes accompany pulmonary re-expansions. Reproductions of radiograms illustrate the text and add to the value of this excellent little book.

Diseases of Old Age

By F. MARTIN LIPSCOMB, M.R.C.P., Major R.A.M.C., Deputy Surgeon at the Royal Hospital, Chelsea. London: Baillière, Tindall, and Cox. 1932. Pp. 472. 12*s*. 6*d*.

WHEN the student or resident leaves his training hospital he is rather inclined to think of any sick person over the age of 65 as someone to be got rid of as soon as possible, either by means of a bottle of medicine or an "infirmary order." His consternation on starting practice to find that a large proportion of his time is taken up by old people is enhanced by his difficulty in obtaining information to fill this gap in his education. Dr. Lipscomb has endeavoured to give a straightforward clinical account of those maladies which have a high incidence in old age, and those which are conspicuously modified at this period of life or are of special diagnostic interest. Though the book is primarily medical, it includes a chapter on some surgical aspects of old age as well as on its general management; ætiology and pathology have been reduced to a minimum. Mistakes are few; it is not clear, however, to what the reference to page 104 refers in the chapter on the urinary organs. The best sections are those on the heart, the nervous system, and the mind, and they

are illustrated throughout by the author's personal experiences among the Chelsea pensioners. Not enough stress, perhaps, has been laid on the extreme difficulty of regulating an aged person's bowels to the mutual satisfaction of the patient, the nurse, and the medical attendant, nor on the fact that the low abdomen of the old reveals quite a number of masses apt to be diagnosed by the unwary as carcinoma. Even if such a diagnosis should be correct it would probably be unwise to mention it, since carcinoma grows so slowly in the very old that they may easily die of some intercurrent disease before the growth has caused any symptoms. This book is essentially practical and well balanced, of great interest to all, but especially suitable for the young practitioner.

The Gold-headed Cane

By WILLIAM MACMICHAEL, M.D. Edited by Prof. HERBERT-SPENCER ROBINSON. New York: Froben Press Inc. 1932. Pp. 223, with index and copious notes. $3.50.

THE sixth edition of William Macmichael's well-known and fascinating book has appeared in attractive form in the series entitled Historia Medicinæ now being issued from the Froben Press. The edition is edited, with explanatory and illustrative notes, by Prof. H. S. Robinson, well known as an expositor of English literature in American university centres, and author of "English Shakespearian Criticism in the Eighteenth Century," and other works of literary interest. This new edition contains the original illustrations to the 1828 edition—the second edition—as well as hitherto unpublished portraits of Macmichael and details of his life and family. Macmichael was an interesting man. He graduated M.D. at Oxford in 1808, was elected Radcliffe Travelling Fellow in 1811, and interpreted the responsibilities incurred by visiting during the next five or six years Russia, Turkey, the Danubian Principalities, and Palestine. He was elected a Fellow of the Royal College of Physicians of London in 1818; in 1824 became registrar to the College, and while holding that office had the happy idea of publishing the biographies of five leading London physicians of the eighteenth century who in succession had been in possession of a gold-headed cane, now the property of the College. The five physicians were John Radcliffe, Richard Mead, Anthony Askew, William Pitcairn, and Matthew Baillie, and on the death of the last the cane was presented to the College by his widow. It bears on its crutch-handle the arms of its five distinguished owners.

The first edition of "The Gold-headed Cane" appeared in 1827, and a second appeared in the following year with considerable additions, and has formed the text of subsequent issues. Throughout its life of over a hundred years the work has met with such popular favour that it has earned fairly the hard-worked epithet of a classic. The device by which the cane is made the describer of its five famous possessors—a popular narrative method a hundred years ago—was carried out with such literary skill that constantly the reader feels that he is listening to the views of a human contemporary of the famous doctors, so large a proportion of whose patients were famous also. Radcliffe, after being in ill odour with King William and Queen Mary, refused to attend Queen Anne in her last illness apparently because he was not properly summoned; Mead, friend and physician of Sir Isaac Newton and Pope, would not continue to treat Sir Robert Walpole unless a political prisoner, a colleague, was pardoned; Askew knew all the great scholars of the day, and declined to be physician to Queen Charlotte on her arrival in England (the "Cane" is the authority for this statement). The lives of Pitcairn and Baillie do not suggest that the Cane when in their possession was carried into quite such aristocratic circles or conducted with quite such a sense, due or undue, of importance, but Pitcairn and Baillie were fine representatives of the profession in the eighteenth century, and the latter made valuable additions to pathological knowledge.

The special value of the new edition of "The Gold-headed Cane" lies in Prof. Robinson's profuse and accurate notes. Practically every personal reference made by the Cane to a vast number of distinguished persons with whom its five owners had been associated is explained by biographical notes, quotations, and literary allusions. Students of medical history will be grateful to the learned and industrious editor.

Food, Health, Vitamins

Fifth edition. By R. H. A. PLIMMER, D.Sc. Lond., Professor of Chemistry in the University of London at St. Thomas's Hospital Medical School; and VIOLET G. PLIMMER. London: Longmans, Green and Co. 1932. Pp. 143. 3s.

THIS useful and inexpensive little book is brought up to date in a new edition, which contains notice of all the most important contributions to the subject which have been made since the appearance of the last edition. These include particularly work on the relation of carotene to vitamin A and attempts to isolate the antiscorbutic vitamin. There is a brief useful addition on the separation of vitamin A from vitamin D, and of B_1 from B_2, and the section on pellagra has been considerably modified. Hypervitaminosis D receives attention, and stone in the bladder is dealt with from a different point of view. There is no bibliography, although many names are mentioned, followed by a date in brackets; in a few instances the full reference is supplied in a footnote.

1. Management of the Sick Infant

Fourth edition, revised. By LANGLEY PORTER, B.S., M.D., M.R.C.S. Eng., Professor of Clinical Pediatrics; and WILLIAM E. CARTER, M.D., Instructor in Pediatrics at the University of California Medical School. London: Henry Kimpton. 1932. Pp. 763. 42s.

2. The Infant: A Handbook of Management

By W. J. PEARSON, D.M., F.R.C.P., Physician-in-charge of the Children's Department, University College Hospital; and A. G. WATKINS, M.D., M.R.C.P., B.Sc., Physician in Children's Diseases, Cardiff Royal Infirmary. London: H. K. Lewis and Co., Ltd. 1932. Pp. 47. 2s. 6d.

1. Preparation of a fourth edition of this ambitious compendium has enabled the authors to include references to almost all the most recent mechanical aids to the treatment of disease in childhood. English readers will be somewhat staggered at their number and diversity. Illustrations are given of the Roth-Barach carbon-dioxide-oxygen tent, the electrically heated Hess bed, and Hess transportation bag for premature infants, and of both hydraulic and electric breast-pumps. The technique of nursing an infant on the breast, however, is dealt with in exactly six lines. The section on "the radiogram" is also very inadequate. Considerable space is devoted to methods

of investigation as well as those of treatment, and it is rather surprising to find a detailed description of the diagnosis of intussusception by the barium enema whilst the subject of encephalography is not even mentioned. Again, we note that of four directions given for dealing with a choking infant one is to call a laryngologist and another is to read Chevalier Jackson's "epochal work" on bronchoscopy.

The book is divided into three sections, the first dealing generally with such subjects as "cough," "vomiting," "prematurity," and "nutrition," the second being a systematised though slightly hurried account of disease in early childhood, and the third giving a detailed description of the methods employed in its investigation and treatment. Of these sections, the last is unquestionably the most valuable. Not only is it well illustrated, but the various methods are for the most part concisely and clearly described, and the authors have collected in one volume a great deal of material that is nowhere else available. This section alone should make the book of value to all who have to deal with infants, either in hospital or private practice, and should make it as well known to pædiatricians in this country as it is in America.

2. Of the numerous books which have appeared recently on the subject of infant management, this probably succeeds in compressing most information into the smallest space. Much of the matter is tabulated, but is nevertheless presented in a readable way. A particularly useful section is devoted to the relative cost of various artificial foods, which should be appreciated by the practitioners, infant welfare workers, and others to whom the book is specially directed. We are inclined to think that more than two and a half pages might well have been devoted (perhaps at the expense of one or more of the several blank pages provided for notes) to the technique and difficulties of breast-feeding in view of the emphasis on the importance of mother's milk with which the first chapter opens. Apart from this, however, the book succeeds in its object of making readily accessible information which has usually to be sought in large text-books.

Growth

By the late J. LORRAIN SMITH, M.D., D.Sc., F.R.S. Edited by J. S. HALDANE, C.H., M.D., F.R.S. Edinburgh: Oliver and Boyd. 1932. Pp. 135. 6s.

No one with any familiarity with the subject will put this book down and feel that they have learned many facts about growth which they did not know before. They will be less satisfied, for their natural reaction will be to say to themselves, "that is an interesting idea, I should like to have a talk with him about that," and they will have a good many questions to ask and things to think about. And they may well see for the first time that some of the simplest phenomena of growth are not nearly as simple as they seem. Lorrain Smith would, we think, be well content to have roused the curiosity of those who read the fragmentary chapters and notes which he had written towards a formal treatise, and which have been gathered up by his daughter and life-long friend. They do not form a coherent whole, there is a good deal of repetition and in some places obvious lacunæ. Except for the tolerably complete chapter in which he argues for the mutative hypothesis of malignancy, they are more like small talk about growth—just the sort of talk which his friends would expect from the man who sits writing at his study table in the delightful frontispiece—gentle, suggestive, in flashes of some happy phrase sometimes illuminating and never wholly conclusive; he was too much of a philosopher for that. The part of the book which he had sketched out is mostly about the growth of individual cells, from their beginnings as independent units to their full maturation, and he evidently thought a good deal about the examples in which maturation means death, as in the skin and the red blood corpuscles. But he would have us wonder how it is in the growth of the skin, for example, that only one of the two cells which come by the division of a germinative cell progresses to the stratum corneum, while the other remains to divide again. It is indeed a problem; no wonder Lorrain Smith wanted to get more pathologists interested in it. For, as he truly says, cell growth is one of the really fundamental things in their science.

British Journal of Children's Diseases

THE October-December issue (vol. xxix.) contains a paper on Experimental Studies on the Filtrable Microbe of Scarlet Fever and on Activators in Relation to Hæmolytic Streptococci, by Dr. T. Toyoda and Dr. Y. Futagi, of the Japanese Government Isolation Hospital at Dairen, Manchuria. They first discuss Di Cristina's theory concerning the filtrable microbe of scarlet fever which was supported by Caronia and Sindoni. Like Bürgess and Meyer in Germany the Japanese observers carried out investigations whose results contradicted those of the Italians. As regards the question as to whether any other factor than streptococci is needed in the ætiology of scarlet fever, Toyoda and Futagi failed to discover the filtrable microbe described by Zlatogoroff on the diphtheroid bacillus of Mandelbaum, who regard their organisms as activators of the hæmolytic streptococcus of scarlet fever. Toyoda and Futagi conclude that there is no necessity to consider some other unknown microbe besides the hæmolytic streptococcus as responsible for scarlet fever.—Dr. G. T. Cook contributes a paper On the Association of Pulmonary Changes with Rheumatic Pericarditis, based on a study of the literature and observations on 13 personal cases. He emphasises the frequency with which pulmonary signs are found in association with acute rheumatic pericarditis, and states that they occur much more frequently on the left side than on the right. The pulmonary condition which may arise quite independently of any pleural or pericardial effusion shows considerable variation both in the severity of the signs and symptoms and in their duration. The histological appearance of the lungs is these cases is one of collapse and passive congestion rather than that of a specific inflammatory condition. Cook suggests that the pulmonary condition is an active massive collapse of a portion of the lung, being due to reflex disturb nce of the vagus and sympathetic innervation of the lung from inflammation of the pericardium.—In a paper entitled A Pedigree of Hæmophilia, Dr. W. J. Rutherfurd records his observations on a pedigree of five generations in which seven cases of hæmophilia were known to have occurred. Of the 66 individuals in the pedigree there were 54 whose sex was reported, 21 being males and 35 females; 14 of the 66 died in infancy or early childhood.—In his paper on Some Pædiatric Eponyms, IV.—Sydenham's Chorea, Dr. W. R. Bett refers to Hecker's account of epidemic chorea in the Middle Ages, and reproduces Sydenham's description from the Schedula Monitoria, illustrated by a portrait of the English Hippocrates.—Dr. E. W. Goodall records A Case of Recurring Serum Rash in a girl aged 2 years, who after an injection of 12,000 units of antitoxin for diphtheria developed six times in the course of six weeks an erythematous rash such as is common after serum injections, with an interval between each rash. There was no pyrexia nor any other symptom beyond the occurrence of an abscess at the site of injection with any of the rashes.—The annual index in this issue provides a guide to contemporary pædiatric literature.

THE LANCET

LONDON: SATURDAY, JANUARY 14, 1933

MASKED HYPERTHYROIDISM

FOR the clinician one of the most important advances made of late in our knowledge of thyroid disease is the discovery—or perhaps, more accurately, the rediscovery—of a condition which has been called in America "masked hyperthyroidism." Elsewhere in this issue Dr. JOHN TOWERS records a series of cases of this type. From work done chiefly in America we now know that thyroid secretion may do no little damage to the heart in the absence of those classical signs, such as changes in the eyes, wasting, nervousness, and obvious goitre, which can be seen at a glance, and on which the diagnosis of Graves's disease has in the past depended. All these symptoms may be absent in a patient suffering from heart failure, and yet the failure may be correctly attributed to the action of an abnormal thyroid secretion, perhaps over a long period of time, and certainly on an organ rendered susceptible by increasing age. The adjective "masked" is therefore well applied. The condition is seen, apparently, only in people at or past middle age, and while it is not a new idea that the classical signs of thyroid intoxication tend to be much less conspicuous at this age than in the young, the cases covered by the new term show these signs only in minimal degree or not at all. T. P. DUNHILL'S thesis that the infinite variety of the clinical picture of thyroid intoxication can be explained by variations in three factors—the stimuli, the thyroid gland, and the organs affected by the disordered secretion—is an attractive one, and it may be that masked hyperthyroidism can be best accounted for along these lines.

Most often the patient will present herself—the female predominates, but the male sex is not excluded—with symptoms suggesting heart disease, especially palpitation. This may occur with sinus tachycardia, sometimes with premature beats in addition; with auricular fibrillation, which is likely to be paroxysmal at first; or even with normal rhythm without tachycardia. Congestive heart failure of thyroid origin is found only in association with permanent auricular fibrillation. Whether the thyroid heart enlarges or not, and whether or not any histological changes, specific or otherwise, are produced in the myocardium, are matters that have been controversial for some time. From the practical point of view they do not affect the clinical fact that the thyroid can be responsible for cardiac disturbances up to the point of congestive failure. What, then, are the points which will make the diagnosis probable? The eyes show no prominence but a slight staring expression, or sometimes a momentary lift of the upper lids revealing the sclerotic will be a suggestive sign. There may be a salmon tint of the skin, fine tremor, and minimal enlargement of the thyroid, or even undue hardness alone. Improvement with administration of iodine, and increase in the basal metabolic rate (though a normal rate does not negative the diagnosis) will be additional evidence. The character of the apex-beat and of the first sound may give a clue, as is emphasised by Dr. TOWERS. The persistent finding of a high pulse pressure will also be suggestive. Here it may be mentioned that thyroid intoxication has sometimes been considered an occasional cause of diastolic hypertension; the failure of thyroidectomy in two of Dr. TOWERS'S cases with high blood pressure of this type to lower the pressure, while relieving the certain symptoms of excessive thyroid secretion, does not support this view. Finally, the shape of the heart on X ray examination may clinch the diagnosis.

It cannot be denied that the evidence for incriminating the thyroid in some cases of cardiac disturbance is at times slender; yet, in others, the diagnosis can be certain, and appropriate treatment may mean cure, whereas a mistaken diagnosis may mean early death. The first essential in diagnosis is to bear in mind the possibility of a goitrous origin of the symptoms in any middle-aged patient with palpitation, paroxysmal auricular fibrillation, or permanent fibrillation with congestive heart failure. Once the diagnosis of masked hyperthyroidism with heart disease is made a partial removal of the gland is always warranted. Not very long ago cases of cardiac failure associated with thyroid disease were refused operation on the ground that it was too dangerous. With further knowledge of the true risk, and improved methods of pre-operative treatment, this view has been reversed; and it may be said that the greater the heart damage, the slighter are the chances of recovery without operation.

TUBERCULOSIS IN SOUTH AFRICAN NATIVES

THE committee appointed seven years ago to investigate the extent of tuberculosis in South Africa, more particularly in its relation to native races, and to formulate measures for the determination of the morbidity and mortality from tuberculosis amongst the gold mining population of the Rand, has issued a report, summarised on p. 100, which merits careful study. It provides an extensive survey of the South African native from practically every angle bearing upon tuberculosis—anthropology, epidemiology, pathology, and clinical medicine. Since the natives working on the goldfields now number over 200,000, and the incidence of tuberculosis among them is estimated for the period 1928–29 at 6·62 per 1000, the mine population directly affected by this study is large; and in view of the constant migration to and from the mines the study has an indirect bearing on the health of natives in their own territories. The inquiries were conducted on a colossal scale. Intradermal tuberculin tests were

made on 94,000 native mine workers; a single injection of 1/10 c.cm. of 1/5000 O.T. was used at first and the dose was subsequently reduced. The important facts which emerged from these tests were :—

(1) With the strengths of tuberculin used only 65 per cent. of the subjects yielded a positive reaction.
(2) Despite a probable under-estimate of the true numerical strength of the positive group, the incidence-rate per 100,000 of tuberculosis was more than twice as high in the positive group as it was in the negative group.
(3) The more positive the reaction the greater the liability to tuberculosis.

The natives tested were all carefully examined, and if tuberculosis was confirmed they were repatriated and advised not to return to the mining fields. Another group of natives investigated was a collection of chronic cases of tuberculosis detected by mine medical officers after the natives had worked five or more years. Periodical weighings are found to be the most practicable method of early diagnosis, and by the Regulations made under the Miners' Phthisis Act of 1925 any native showing a marked decrease of weight (5–6 lb. or more) between two consecutive weighings, must be referred for special examination. For various reasons no attempt is made to undertake prolonged systematic treatment in the mine hospitals, so that the medical officer has, therefore, only to make up his mind whether or not the native —who mostly clamours to be sent home as soon as he is put off work—is fit to be repatriated. The patients retained in hospital are those who are deemed too ill to travel. Little can be done for these cases, which generally end fatally in a very short time. No complete return of survival periods was obtainable, but figures submitted by four mine hospitals showed that for 145 consecutive cases of deaths from tuberculosis the average survival period was 28 days. An interesting comparison between native and European tuberculosis is afforded by records of 200 consecutive autopsies on tuberculous natives (without silicosis) and 200 autopsy records supplied by the Victoria Park Hospital, London. In the natives, for example, cervical glands were more rarely, other glands more commonly involved, and involvement of the spleen, liver, and other abdominal organs was far more common among the natives. The writers of the report regard these native cases as approximating closely to the type of acute tuberculosis of non-immunised races, which was first differentiated by BORREL as an outcome of his classical investigations in Sengalese recruits. The South African mine native is not, however, as they have shown, completely virgin soil. The actual extent of the incidence in native territories is unknown, no relevant vital statistics being available. Dr. PETER ALLEN, medical superintendent of the Nelspoort tuberculosis sanatorium made for the committee a tuberculin survey which revealed a high degree of tuberculosis amongst the southern group of the native territories and a lower degree in the northern group. Between the ages of 5 and 15 tuberculisation was more marked in girls, who do not go to the mines, than in boys; at later ages the boys "caught up." Out of 694 natives repatriated from the mines with tuberculosis during the years 1926–29, Dr. ALLEN followed up 475, and his records make grim reading. Two years after repatriation 60 per cent. were found to have died, and of the rest 4 per cent. were fit to return to heavy work, 10 per cent. were not fit for any work, and 26 per cent. were fit for light work at their homes. Although it cannot be assumed that the repatriated tuberculous plays no part in the spread of the disease in the girls, it is equally impossible to believe that he is the sole agent responsible for the wide dissemination. The economic situation in the native territories often forces the native to seek work from the European in industries where he may either acquire a primary tuberculous infection or light up a smouldering lesion which he already possesses.

The inferences to be drawn from these exhaustive inquiries are of deep significance. The urgent need for a radical improvement in the medical services in the native territories has led the committee to advise the appointment of a travelling medical officer with the special charge of dealing with tuberculosis amongst repatriated workers. Anti-tuberculosis measures, they say, should be provided in urban locations, and the committee are also of the opinion that there is scope here for investigation of the value of a B C G vaccine amongst the children of urban locations where tuberculosis is rife. They recommend that travelling conditions to and from the native territories should be investigated, and note that there is still room for improvement in the accommodation provided in the mine compounds; notably in the direction of fewer occupants in each room and of better separation between individual bunks. A period of rest and a light meal during working hours, which involve an average of ten and a half hours underground and eight hours' continuous work without food, is recommended, with the addition of vitamin A to the dietary. The protection of natives from sudden changes in air temperatures and velocities by suitable ventilation or by the provision of extra clothing is also advised. Special anti-tuberculosis measures on the mines should include a stringent initial examination to exclude natives arriving with latent tuberculous lesions; a gradual acclimatisation to strenuous mine-work; periodical examination of all natives with over five years' total mining service; and continuous efforts to improve on the present admittedly high standard of dust suppression without increasing humidity in the mines. Finally, in order to ensure continuity of policy the committee propose the appointment and maintenance by the Chamber of Mines of a standing advisory health committee. As the committee remark, "tuberculosis of the native is not only a native problem. It is the problem which touches the health of the white community very nearly and will do so to an increasing extent. . . . . Those who take the long view will agree that the sooner the length and breadth

of the problem is made better known through the collection of vital statistics the better for the Union of South Africa."

No one who studies this report will fail to be stirred by the plight of the native infected with tuberculosis. The degree of immunisation acquired by the South African native seems to be about that of a European child and falls far short of that of a human adult; and the protection afforded to him when he seeks work entailing risk of infection must be designed on this assumption. Prof. LYLE CUMMINS, in a commentary which is incorporated in the report, discussing the failure of the authorities to provide an adequate medical service for the black populations in the native territories, sums up well (p. 290) the impression left by the report. He says "to one who is merely a visitor to South Africa, the sight of such a dependant population, giving so much and obtaining so little in return, is calculated to arouse feelings much deeper than surprise." That much can be accomplished on relatively simple lines is proved by the success of the medical services organised by the mining companies for the natives during their actual periods of work on the Rand; a provision which offers a sharp contrast to the almost complete lack of medical and surgical facilities in the Transkei and Ciskei, where the witch-doctor still exploits the credulities and the necessities of the sick. Through nearly half a century of trial and error the mining industry has learnt its lesson—that a healthy native working population is worth paying for. The issue of this report is timely, since gold mining in Kenya must involve the application of knowledge gained in the Transvaal if the native labour corps recruited for the development of the mines is to be protected as far as possible from the dangers associated with this work.

PAIN AND THE DOCTOR

August Bier once wrote, "The doctor should cause no pain"; and the saying, though a hard one, merit attention, coming as it does from one responsible for numberless appliances, large and small, for relieving or diminishing painful or uncomfortable sensations. The late Dr. Albert Krecke,[1] in an intimate study of doctor and patient which well describes the state of mind of sick people, echoes the warning given scores of times to the medical student, and as often forgotten: "Do not touch; look." It was one of the heritages of C. B. Lockwood's teaching that his pupils never forgot this maxim. But beyond the skilful use of eyes there must also be the skilful use of fingers. Speaking last term to students of this art of handling living flesh, Mr. Wilfred Trotter [2] said:—

"Here at any rate is something everyone can teach himself. Hands coördinated to smooth, firm and gentle movement are to the sick body the complement of the attentive receptive mind. . . We must not use the excuses that patients expect to be hurt, that they accept with resignation the clumsy dressing of wounds, and allow themselves to be examined by a series of crude prods and bangs. When you ask a patient if you are hurting him, nine times out of ten he will reply with touching cheerfulness 'Not yet, doctor.' What a succession of iron thumbs is disclosed by that answer!"

This passage gives colour at least to the accusation lately made by a lay writer, Mr. Gerald Heard,[3] that the medical profession does not take pain seriously enough.

Mr. Heard is explicit. "Quite half of the people who stay away from you when they should come to you," he says, "are staying away frankly because they dread torture. They will stay till too late because they believe that you are not actively concerned to save them suffering—you are exclusively concentrated on trying to save life." We know that this statement is not true, but like pain itself it is a genuine symptom of disorder in our relation with patients. There is, in other words, something in the criticism. In his gladness at finding a warning signal that he can read and act upon, the doctor may sometimes forget that the patient, after all, does not come seeking a sign. Mr. Trotter, in the address already quoted, emphasises the difference in aim:—

"The ordinary patient goes to his doctor because he is in pain or some other discomfort and wants to be comfortable again; he is not in pursuit of the ideal of health in any direct sense. The doctor on the other hand wants to discover the pathological condition and control it if he can. The two are thus to some degree at cross-purposes from the first and unless the affair is brought to an early and happy conclusion this divergence of aims is likely to become more and more serious as the case goes on. The good doctor therefore has to learn to serve two objects at the same time—the diagnosis and treatment of the patient's ailment on one hand, and to keep him comfortable on the other."

If Mr. Stephen Leacock is to be believed—some of his pungent comments are quoted on p. 121 the modern doctor fails very lamentably to achieve this double service. And Mr. Leacock's satire certainly contains a regrettably large grain of truth. "The best thing that could happen to you," said an experienced practitioner to his young colleague, "would be to have a serious illness early in your career"; and one cannot help thinking that most of us would be the better (professionally) for serious illnesses at regular intervals all our lives. If the doctor really had the patient's point of view would he not be a little less light and airy about pain? Would he not ask himself more often whether it was really necessary, whether the new resources of medicine could not overcome it, whether the benefits of non-interference were worth the price? Sometimes, perhaps, we accept too readily the traditional view that pain is something which cannot be avoided. The patient knows that he can grin and bear it, if necessary; but he asks that the sacrifice of his comfort should be justifiable—justifiable not on some antique conception of the inscrutable ways of Providence, but upon the principles of modern medicine, interpreted and applied with common sense. Where cure is actually impossible or unlikely there

[1] Von Arst und seinen Kranken. By Alfred Krecke. Munich: J. F. Lehmann. 1932. Pp. 378. R.M.6.
[2] Univ. Coll. Hosp. Magazine, Sept.–Oct., 1932, p. 212.
[3] Middlesex Hosp. Jour., July, 1932, p. 185.

is much to be said for being allowed to die at ease in Zion and to smile.

Pain occupies a patient's attention in the present, and even when it is past its shadow darkens the future. A painful convalescence is likely to be a slow convalescence; recovery may be slow because pain focuses the mind on the existence of something wrong; the thoughts are anchored to disease. But it is the doctor's thoughts that should be so anchored; the pain should primarily be *his* concern, and as soon as he has interpreted its meaning he should take steps to abolish it. It may be answered that pain, since it is subjective, cannot be accurately measured; the language used to describe it, though at times full of colour, is vague and metaphorical and may be misleading. There can be little doubt, however, that were it possible to register pain in the same way that it is possible to register body temperature, far more notice would be taken of it. The stoic's mask would be snatched from him, with the result that what he describes as a mere nothing would have a unit placed before the cipher and possibly another cipher added. He would no longer be able to suppress the painful truth, and the physician would in consequence be in a better position to deal with it. We should be able, too, to gauge the problem of different individuals' reaction to pain, to admit more willingly than we do that certain people, and not always those who pride themselves on it, are far more sensitive than others.

Pain is important. None the less we doubt if it is the principal deterrent from medical treatment, as Mr. Heard makes out. It is chiefly the unknown that people dread—uncertainty, a strange environment, the interruption of a familiar routine. Pain, if necessary, most of us will accept; we ask, however, that we shall be treated as individuals who suffer, even though the doctor may remember us only as cases he has cured.

THE MEDICAL STUDENT IN THE UNITED STATES

THE Association of American Medical Colleges appointed a commission, as long ago as in 1925, to study the various principles under which the medical curriculums of the country and the issues of qualifications were conducted. The commission was instructed to make suggestions for necessary reforms, and especially to note the directions in which action could be taken towards the improvement of university education in conformity with the needs of existing society. The Association, in coöperation with the American Medical Association, has already regulated the educational standards which the various States must bear in mind when issuing licences to practise, when a revision of conditions was found necessary with considerable frequency in order to meet abuses which had grown up under proprietary and commercial medical schools, certain of which had degenerated into manufactories for the supply of imitation degrees. Both Associations are to be congratulated on the success of their joint action, for during the past 25 years professional medical training in America has undergone radical improvement, as will be readily gathered from the report of the 1925 Commission which has just been issued,[1] while the scandal of bogus medical institutions has largely if not entirely disappeared. The personnel of the commission comprised recognised authorities upon medical education and university organisation, and the financial support was derived from the Rockefeller Foundation, the Carnegie Corporation, the Josiah Macy, Jr., Foundation, and the American Medical Association.

While from the report we can see how much has been done, we can see, also, how much remains to do. Although the various efforts to standardise medical education and to reform the bodies responsible for it have led to certain minimum requirements for proper instruction being universally met, there remain wide differences, both in ideals and in organisation, among the institutions, some of which are among the great medical centres of the world and some of which may have survived the scrutiny of the Associations not without a struggle, but are now proving their worth. The differences are found not only in buildings, equipment, and financial stability, but in the facilities and amenities forthcoming for ward and laboratory training, and represent the handicaps under which certain of the schools are labouring. This position has been made clear during the prolonged sittings of the commission by the regular issue of ad interim reports, from which could be gathered seriatim the nature of the problems with which the commission was dealing and the needs of the community to meet which the medical profession had to be equipped. The place of post-graduate education and the due scope of specialism had both to be visualised, as well as the conditions under which the students were trained and the hospital appointments were held, before concrete recommendations could be justified. These matters are discussed in the report before the details of the curriculum are taken up, in order that any reflections upon the training may be related properly to the entire professional life of the physician. In consequence, we get the feeling that the advocacy of certain principles has had throughout the common intention to render the doctor useful to the community in his sphere. For the same reason reference is made only incidentally to particular scientific work, to staff organisation, and to finance. All of these, as they influence the training of students, the selection of teachers, and the quality of instruction, are held to be so generally appreciated that to discuss them is superfluous. The value of the document lies in the resolve to regard the life of the doctor as an entity, and to present a picture of the training that should fit him best to serve his generation wisely in the home, the ward, or the laboratory.

[1] Final Report of the Commission on Medical Education. Office of the Director of Study (Dr. Willard Rappleye), 630, West 168th-street, New York. 1932. Pp. 560, including appendix, tabular statement, and index.

The report closes with some brief notes on medical education in six European countries. Dr. WILLARD RAPPLEYE, who, under the designation of director of study has been the organiser of the commission, personally visited certain medical centres in this country, France, Germany, Austria, Sweden, and Denmark, so as to provide the commission with first-hand knowledge of European methods. The summaries of his impressions will be valued by our readers at a time when none of us conceals the feeling that medical education in our own country needs revision in many directions. Some whose cries for the revision of our medical curriculum are most vocal should have before them at least a skeleton of the plan under which the training of medical students in other countries is conducted, so that comparisons to the credit or discredit of our procedure may be instituted. For instance, the place taken by the State and by the universities in the group of countries visited by Dr. RAPPLEYE turns out to be nowhere exactly the same; licensing corporations exist with us which have no exact counterpart abroad; in Germany and Austria medical education is largely developed under the medical faculties of the universities, while with us it has owed its existence to the schools connected with independent hospitals. In this country the holding of a hospital resident appointment is not necessary before the issue of a licence to practise, but in certain American schools the experience of an internship is regarded as part of the basic training. The standards of premedical education and the opportunities for post-graduate expansion present also great variety in the different countries. These things come in for mention in their proper place in an orderly report. If they are often only alluded to, the allusion will be sufficient to remind us that changes made in an arbitrary manner have their risks, for they may jeopardise that entity to which the commission attaches high value, expanding one section—scientific or social—at the expense of other sections equally important. Coördination of effort to obviate duplication and to secure active participation of all in a common undertaking is, in condensed form, the message of a valuable document.

ANNOTATIONS

DEHYDRATION DURING OPERATIONS

SURGEONS have long recognised, more or less empirically, that dehydration plays a considerable part in causing post-operative shock, and rectal or parenteral injections of normal saline solution are widely and successfully used in treating this important complication of major operations. It would be more rational, however, to pay greater attention to the various factors responsible for the negative fluid balance, and in this connexion a paper by F. A. Coller and W. G. Maddock [1] should be welcome. They have analysed the losses of water through all possible channels in a series of operations, most of which were abdominal.

The most important and, to the superficial observer, the least obvious way in which water escapes is through the skin and lungs, which, even in the absence of visible sweating, normally dispose of a large fraction of the fluid which leaves the body. Coller and Maddock find that three-quarters or more of the fluid lost during an operation is accounted for by sensible and insensible perspiration. The excretion of water through the skin may indeed be increased up to as much as ten times the normal rate. This is mainly due to the high environmental temperature of the operating theatre, and to overloading of the patient with blankets. It is greatly augmented if the patient struggles under the anæsthetic. It should also be remembered that overbreathing provoked by ether or nitrous oxide will undoubtedly increase the elimination of water by the lungs. In comparison with perspiration the other factors tending to produce dehydration are relatively insignificant. The loss of blood, though usually greater than the surgeon believes, is not enough to influence fluid balance to any significant extent, except in operations involving extensive dissection of tissue, such as radical amputation of the breast. In such instances capillary oozing is perhaps more to blame than spurting vessels, and the sponges probably absorb, in addition, considerable quantities of interstitial fluid. To the above list two factors might be added which, it is to be hoped, apply to the past rather than the present. The first is pre-operative starvation, during which the body loses large amounts of its fluid reserves, irrespective of the water intake. The second is the over-enthusiastic use of purgatives and enemata before the operation.

There is a practical moral to be gained from the observations of Coller and Maddock. No one would deny the importance of keeping the patient warm while his heat regulating centres are disabled by the anæsthetic. But is it not possible that the modern patient is too lovingly swaddled in wool and hot packs?

[1] Jour. Amer. Med. Assoc., 1932, xcix., 875.

THE KING'S FUND DOLL'S HOUSE

IT is difficult to say where the charm lies of a common object, such as a chair, made on a scale which ignores ordinary dimensions; nor is there any good reason, unless psychology can provide one, why a chair in a doll's house should be more generally pleasing than the gigantic throne of an Egyptian god. Perhaps miniatures flatter our self-importance. Probably Gulliver preferred being a personage in Lilliput to finding himself a droll but contemptible manikin among the Brobdingnagians. Whatever the reason, small-scale models always seem to enjoy a wide popularity, and King Edward's Hospital Fund for London has chosen a sure way of making new friends in building the miniature hospital which is now on view at 158, New Bond-street.

In this model the scale of ¾ in. to a foot has been faithfully maintained in every detail, from the bricks cleverly marked on the outside to the chromium-plated taps in the bathrooms. The plans of the hospital were prepared by the late Mr. Percy Adams, F.R.I.B.A., and after his death in 1930 the work was carried on by his partner, Mr. Lionel Pearson, F.R.I.B.A. The hospital is made on a T-shaped ground plan, and stands in its own garden; the long-arm of the T houses the wards, and ends in a rounded solarium inside which patients may be seen sun-bathing. Owing to difficulties of packing

and transport, there are no separate administrative blocks, nurses' home, or laundry, such as are recognised to be part of the equipment of a modern hospital, but with this limitation the model has been made as complete as possible. The cross-bar of the T contains the matron's quarters (and the matron), the board-room, operating theatres, and kitchens. At the junction of the cross-bar with the long-arm of the T is a square clock-tower accommodating the staircase and a working model of a bed-lift, with patient, trolley-bed, nurse, and liftman all complete. On the top floor of the ward-block is the children's ward, furnished with railed cots and various diminutive toys; the walls are tiled and decorated with nursery rhyme pictures adapted from Thomas Derrick's cartoons. On the floor below is a general ward which is full of new plans for the comfort of the patient. The beds stand in cubicles which can be divided from one another by curtains strung on metal frames; and instead of jutting out into the ward in the time-honoured way, the beds are arranged on the new plan, parallel with the walls, so that the patient need not face the light directly, and, with a little management, can have his feet near the radiator instead of his head. The dual operating theatres are on the same floor as the general ward, but in the cross-bar of the T. The scale-model theatre equipment is complete and delightful; even shadowless lights have been supplied to illuminate the model operating tables, and the latest theatre windows have been fitted into the outer walls. The bottom floor of the main block is devoted to an X ray department, the equipment of which is again a triumph of delicate workmanship.

It is impossible to describe all the details of this fascinating toy—the bathrooms, sink-rooms, private wards, ward kitchens, balconies, kitchen with its elaborate cooking equipment, ambulance yard, or gardens with their sorbo trees, and two inexplicably dejected patients gazing at the fish-pond—but a final word or two must be given to the board-room. This dignified chamber is panelled in sycamore, and floored with teak; the furniture is of walnut, beautifully made, and a heavy hand-made carpet covers the floor. On the walls hang portraits of Florence Nightingale and Lord Lister, also of Lord Moynihan and Lord Dawson, painted by Mr. Alfred Praga, president of the Society of Miniaturists. The King's Fund may justly hope for their hospital the success which so much patient effort and fine craftsmanship deserves.

PATENT DUCTUS ARTERIOSUS

THE fact that congenital patency of the ductus arteriosus in its typical form presents characteristic physical signs which are easily recognisable makes it possible to study this form of congenital heart disease with more confidence in the accuracy of the diagnosis than is possible in many other forms of congenital cardiac defect. Dr. D. C. Muir and Dr. J. W. Brown [1] have investigated 20 cases of this condition, 7 males and 13 females, whose ages ranged from 5 to 21. The pathognomonic physical sign, the peculiar continuous "machinery" murmur heard in the second left intercostal space close to the sternum, was present in 12 of the 20 cases, but in one was maximal in the first left interspace. The remaining 8 children presented a harsh systolic murmur maximal in the second left intercostal space, with a definite, accentuated, or reduplicated pulmonary second sound. The presence or accentuation of this sound Muir and Brown regard as important in the differentiation of this condition from that of pulmonary stenosis in which the second sound at the pulmonary area is usually reduced or absent. In no case was any cardiac enlargement detectable clinically, but 7 cases showed a band of dullness in the second and third left intercostal spaces close to the sternum (Gerhardt's dullness). The authors found radiography of considerable value in the confirmation of this abnormality. The pulmonary arc was prominent in antero-posterior radiograms in 16 of the cases, and the conclusion is reached that the radiological features of this condition are definite enough to be of value in its differentiation from other congenital cardiac defects. The striking feature of the symptoms was their rarity. Fifteen of the patients were free from complaints of any kind; 2 complained of præcordial pain, and in 1 it was definitely related to exertion. In 2 cases there was an associated neurosis, largely produced by parental anxiety consequent upon incorrect diagnosis. This illustrates the importance of recognising and differentiating this condition from more crippling cardiac disorders. Transient cyanosis was noticed with infection in 3 cases. One patient presented features of infective endocarditis. This case, together with one of Dr. C. Bruce Perry's, is reported by Dr. Brown elsewhere in our present issue, and may serve as a reminder that every patient with a congenital anomaly of the heart is a potential subject of infective endocarditis. In Muir and Brown's series it was found that the presence of a patent ductus arteriosus affected physical development hardly at all, 6 patients being of average and 9 of over average development, only 5 showing any retardation of growth. As regards incidence, it was found, contrary to the usual teaching, that patent ductus arteriosus was relatively common among congenital cardiac defects. The 20 cases described occurred in a series of 88 cases of congenital heart disease, of which they form 23 per cent. This is a higher incidence than that recorded by Perry,[2] who found 8 cases (6 per cent.) in a series of 121 school-children with congenital heart disease. But if the diagnostic criteria adopted in Muir and Brown's paper were applied to Perry's series the latter would show a higher incidence.

[1] Arch. Dis. Childhood, December, 1932, p. 291.

WAR ON THE BLOOD FLUKE

SNAILS which act as intermediate hosts to blood flukes of man are distributed by and multiply in the irrigation canals of Lower Egypt; these canals are in truth life and death to Egyptians. When in 1925 schemes were put into operation having as final objective the watering of three million acres of the Gezira district of the Sudan, which lies in the angle between the Blue and the White Nile, the problem which presented itself was how the benefits of irrigation could be obtained without its drawbacks in a region which examination of its inhabitants showed to be almost free from schistosomiasis. The risks of introducing it were sufficiently obvious. On the one hand, the drop in temperature in the Gezira in winter was not sufficient, as it is in Egypt, to check the reproduction of snails (nor, it may be added, of the larval stages of the blood flukes developing within them), so that within two years of their opening all the new irrigation canals were, in fact, stocked with bullinus and planorbis snails. On the other hand, immigration of persons whose urine contained living eggs of *Schistosoma hæmatobium* was very great, while the canal banks offered welcome shelter for the

[2] Arch. Dis. Childhood, 1931, vi., 265.

purposes of nature, so that miracidia, as they escaped from eggs which reached water, had ready access to their next hosts. As to the extent of the risk from immigrants, the examination of 50,000 at the quarantine stations on the White Nile showed a percentage of urinary bilharziasis varying from 8·4 to 24·4, there being little difference whether the immigrants came from Western or French Sudan in order to earn money enough to buy a wife; or were making a leisurely pilgrimage to Mecca from as far off as West Africa, with intermediate halts to earn their living. Moreover, when irrigation was established, immigration from Egypt set in on a large scale. The risk of widespread infection of the Gezira was, then, great, and the prospect of preventing it unpromising. But the problem was ably met, as is shown in a paper by R. M. Humphreys.[1] After irrigation began, and before the canals became snail-infested, a survey covering over 27,000 inhabitants displayed considerable infection, nearly all in immigrants. All infected residents were compulsorily treated till living eggs were no longer passed, as were infected persons at the quarantine stations before they were allowed to pass into the Gezira. Antimoluscan measures consisted in yearly re-excavation of a third of the 720 miles of canal with drying of the silt, a procedure fatal to these snails; while the rest of the canals were treated by a commercial carbolic fluid sufficient to produce in them a strength of 1 in 20,000, which strength was found to kill all planorbis and bullinus species. To these preventive measures was added propaganda by instruction in schools and by the issue of two pamphlets. One of them showed in simple manner the life history of the fluke, the other contained a copy of a religious decree pronounced by the Grand Mufti, the highest authority in the Sudan of the Mohammedan religion, prohibiting the fouling of water by washing, bathing, or human excrement. The result has been a very great lessening of the amount of infection. A danger threatening tens of thousands of persons has been averted by the foresight of the director of the Sudan Medical Service, Mr. O. F. H. Atkey, by the coöperation he secured with the engineers, and by the conscientiousness with which necessarily uninteresting routine measures have been carried out by the medical officers under his control.

[1] Trans. Roy. Soc. Trop. Med. and Hyg., 1932, xxvi., 241.

HANS MUCH

THE death of Prof. Much can hardly remain unnoticed in this country. When he died in Hamburg a few weeks ago at the age of 52 years he was still director of the Institute of Experimental Therapy at the Eppendorf Hospital whither he was called by Lenhartz in 1907 from Marburg where he was assisting Behring. During this time, as befitted a loyal disciple of Robert Koch, there were few clinical problems connected with tuberculosis which he had not investigated from the serological standpoint, but to the perplexity of his friends and still more of himself his work led him further and further into the wilds of scientific and philosophic doubt. More than in his orthodox studies his memory will survive in the name of an unspecific producer of immunity (omnadin) and in works little short of genius on Buddhism, Egyptian culture, and Low German poetry. Recently the tragic fate of his friend Deycke brought him out of retirement into a merciless attack on the Pasteur Institute and its founder. Soon after reaching Hamburg Much began his work on the acid-fastness of the tubercle bacillus. It had of course then already long been realised that the bacillus was not equally resistant to acid throughout; specimens stained by the Ziehl-Neelsen technique showed a discontinuity of acid-fastness giving the appearance of beaded forms. Much claimed that by means of his special staining there could be demonstrated in pus of tuberculous cold abscesses tubercle bacilli which were entirely non-acid-fast, while still virulent to laboratory animals. He believed there were three states in which the tubercle bacillus occurred, all of them virulent—viz., an acid-fast form, gram-positive non-acid-fast granules, and granular bacilli; and he suggested that the granular forms might represent developmental stages. Later work of other observers suggested that these granules were of a lipoid nature. Nowadays the existence of such a virulent non-acid-fast form of the tubercle bacillus is increasingly doubtful. Most observers believe, with A. S. Griffith, that if the search is sufficiently prolonged the true acid-fast bacilli can generally be found in the pus of cold abscesses which, according to Much, ought not to contain them, whilst direct cultures from such bacilli yield colonies proportionate in number to the scanty acid-fast element seen microscopically. The crux of the question appears to be one of virulence. It may well be true that acid-fastness is associated with the life-cycle of the tubercle bacillus, and is not present to the same degree throughout its whole length. But there are few who hold with Much that a completely non-acid-fast tubercle bacillus can remain virulent. Later on Much turned his attention to the separation of different antigens of the tubercle bacillus on the assumption that the organism had a number of chemically different substances to each of which the human body reacted in a particular way. These so-called partial antigens or "partigens" have been given a very considerable trial without fulfilling what Much hoped from them. They have, however, helped to pave the way for other biochemical investigations of the tubercle bacillus.

STREPTOCOCCI AND RHEUMATIC FEVER

THE possible relation between streptococci and rheumatic fever has been investigated from so many angles, with so much apparent confirmation, that some authorities have practically accepted it as proven. The organism has been cultivated from the blood, from the joints, and from the throats of patients—although in this particular respect negative results are perplexingly common. Specific skin tests have been elaborated, and many workers find them convincing. E. W. Todd's[1] striking findings of specific antibodies in the serum of rheumatic patients are recent enough to be well remembered; he found that such persons have a great increase in the antistreptococcal-hæmolysin value of their serum, and his observations are being widely confirmed. New work in America[2] is now advanced as showing that agglutination tests, similar to those employed in typhoid infection, can be applied to rheumatic fever and to various forms of arthritis. Nearly 200 normal persons showed an agglutinating power markedly lower than was present in 300 cases of chronic arthritis and 66 cases of acute rheumatic fever. Only 30 per cent. of normals reacted at dilutions above 1 in 200, whereas nearly 90 per cent. of cases of acute rheumatic fever and 60 per cent.

[1] Todd, E. W.: Brit. Jour. Exp. Path., 1932, xiii., 248.; see THE LANCET, 1932, ii., 250.

[2] Clawson, B. J., Wetherby, M., Hilbert, E. H., and Hilleboe, H. E.: Amer. Jour. of Med. Sci., December, 1932, p. 759.

of chronic cases of arthritis so reacted. Two strains of organisms were used, one "from" rheumatic fever, and the other "from" chronic arthritis. It is not more precisely stated how the strains were isolated; it is of course possible to isolate a streptococcus from any normal person. The authors of the paper say, however, that they do not believe in a specific streptococcus in these diseases; the rheumatic cases reacted with an arthritic strain, and vice versa. In fact, any student of this question will be at a loss to reconcile the divergent claims of investigators who have recognised such specific strains; and Todd's work, already quoted, presents the great difficulty that he estimates the anti-hæmolytic power of serum, although one of the few points common to investigators is that rheumatic fever strains are non-hæmolytic.

From ætiology to therapy is a natural but often fallacious step; and in streptococcal infection imagination has not yet extended beyond serum and vaccine therapy. Two of the same workers in another journal [3] have given the results of their treatment of chronic arthritis by intravenous therapy with vaccines of streptococci. They select this route because they hold that desensitisation in animals can thus be better assured, and because the agglutination titre, which they assume is a measure of immunity, is more readily raised. They claim that 74 per cent. of their cases are definitely improved; moreover, the bactericidal power of their blood was raised. They report unfavourably on the use of subcutaneous vaccines; and of intravenous typhoid vaccine injections, whose employment was sometimes followed by death. They hold that the degree of reaction to treatment is no measure of the success of the method.

The evidence of these authors, who have obviously done a considerable number of tests on animals and on man, must be taken seriously; but the whole question is still unsettled. Although many lines converge on the streptococcus, and no alternative ætiology is so well supported, there are strange incompatibilities. We find one worker obtaining over 50 per cent. of positive blood cultures and another with almost none in 400 cases. H. Warren Crowe and J. C. Small claim results as satisfactory as Clawson and his colleagues, using the very therapeutic measures they condemn. One feels that some essential factor is still awaiting discovery; and that whatever the relation of the streptococcus to rheumatic fever—and relation at least is plausible—it is more complicated than a mere host-parasite relation, such as we find in other pyogenic infections. However, intravenous vaccine therapy, as recommended by these authors, should be without danger; the doses are from 100 million to 800 million; and the organism is stated to be a rheumatic fever strain. Such strains are obtainable in England from the Lister Institute, and clinicians may consider the method worthy of a trial.

[3] Clawson, B. J.: Minnesota Med., December, 1932, p. 804; Wetherby, M.: Ibid., p. 806.

AN OPENING FOR CORONERS

UNDER the heading of the Doctor's Day on p. 108 of this issue a coroner remarks that he knows no life which is so interesting or varied as that of a London coroner; and he goes on to make the interesting revelation that as most of the London coroners are nearing the retiring age there will be plenty of vacancies in a few years. He hints too that there is at the present moment a lack of suitable applicants for the post of assistant deputy which may lead in the long run to that of a whole-time coronership. The London coroners are six in number and are appointed by the London County Council. They receive a salary of £1700 and are provided with offices and officers, the latter being police officers told off for the purpose. Each London coroner has an area which includes from three to six boroughs; he has an officer for each borough, and a number of courts, one of which serves as his headquarters. In the county of London all the coroners are whole-time officials, and they are all both doctors and barristers, although only two of them have actually practised at the bar. Outside the county of London the number of whole-time coroners in England and Wales is not great; but there are nine in the Outer Ring, and Birmingham, Manchester, and Liverpool each has its full-time official. In country districts there is not much work for a coroner, and the duties are often discharged by a solicitor who adds them to his other professional duties, and often holds his inquests in the late afternoon or evening after his other work is finished. This cannot be regarded as a permanent arrangement, and we may look forward to a time when the work will be merged into large areas, each with a whole-time coroner possessing both medical and legal knowledge It is not easy to understand how a coroner without medical qualification can cope successfully with the many highly technical medical problems with which he is confronted. The possession of medical knowledge is more important for a coroner than a legal qualification. He must be able to explain to a jury the nature of murder and manslaughter, but he need not struggle with the niceties of the law of evidence, since his inquiry ranges beyond the narrowed limits of an ordinary criminal trial. A reasonably judicial mind in the reception and weighing of evidence, fairness towards persons under suspicion, and patience and courtesy towards witnesses—these are a better equipment than deep legal knowledge.

JUVENILE RHEUMATISM IN GERMANY

A CAREFUL study of 256 cases of juvenile rheumatism, seen at the Leipzig University children's clinic between the years 1923–30, has recently been published by E. Hässler and L. Möller.[1] The clinical features are set out in great detail, the cases being divided into acute rheumatic polyarthritis (110), chorea (81), and endocarditis (65). The first impression gained from a study of these cases is that the mortality-rate is much higher than in this country; 55 children died during the period under observation, giving a rate of approximately 20 per cent. Rheumatic nodules were observed only in seven patients, of whom two died, so that this sign, according to English standards a manifestation of severity, was lacking in the vast majority of fatal cases. The next point of interest is the use made of the sedimentation rate. The authors regard this as the most delicate indication of the severity of the rheumatic process, and for the past three years they have carried out the test every fortnight on all their rheumatic patients. In cases where the sedimentation rate, beginning often as high as 100 mm. or more in the first hour (Westergren nomenclature), settles down to normal within a week or so the prognosis is held to be good, while a persistently high rate or exacerbations suggest a smouldering process with acute episodes such as pericarditis. The reaction is also made use of in differential

[1] Jahrb. f. Kinderh., 1932, cxxxvi., 257.

diagnosis, since it is claimed that in polyarthritis due to septic conditions, including post-scarlet fever cases, or in cases with widespread pains in the limbs, as in the early stages of poliomyelitis, the sedimentation rate is normal or only slightly raised. The white blood count is also considered, the absence of gross leucocytosis or shift to the left favouring rheumatism. The occurrence of rheumatism in other members of each family was investigated. There were altogether 523 brothers or sisters in the group, and only 22, or 4·4 per cent., showed any manifestation of rheumatism. Dampness in the homes was seldom found. As regards focal sepsis, 48 per cent. of the children had suffered from tonsillitis at the beginning of their disease, while on admission 57 per cent. showed pathological alterations in the tonsils; 38 per cent. had dental caries.

A careful follow-up was made of all but 10 of the patients. Among those who suffered from acute articular rheumatism, Hässler and Möller estimate that two-thirds of the patients completely recovered from their first attack; one-third were left with heart lesions, while 6 per cent. died. Of the cases admitted for a recurrence one-third recovered completely, one-third were left with a damaged heart, and one-third died. The chorea cases did not show the same striking differences between first and subsequent attacks. Just over half recovered completely, most of the others having damaged hearts, while there were six deaths in this series. The group with heart lesions from the onset provide a more complicated analysis which it is impossible to summarise adequately. The conclusion is reached that the fate of rheumatic children is decided usually within the first two years of the onset of symptoms. This seems a more pessimistic outlook than that generally adopted in this country. As regards treatment, tonsillectomy is not favoured, and a method of treating the tonsils with X rays does not seem to have been very successful. Salicylates were found to give variable results and were not without certain drawbacks; pyramidon is recommended as a satisfactory alternative. The opinions expressed on convalescence will depress workers in this country, where many efforts have been made of recent years to secure suitable special convalescent accommodation for rheumatic children. In this series cases kept under careful control in hospital have remained remarkably free from recurrences, while among those sent to special heart homes or ordinary convalescent homes recurrences were relatively common, so that the value of this after-treatment is held to be very doubtful.

HEALTH OF THE ROYAL AIR FORCE FOR 1931[1]

FLYING is becoming safer. In 1931 in the Royal Air Force the ratio of hours flown to accidents resulting in injury or death was greater than in any previous year. The annual report for 1931 records rather more illness this year than in the previous one, attributed to more influenza at home. The main cause of disability in the Force, however, was injury, athletics giving a small increase. The chief causes of invaliding were psychoneurosis (32) and tubercle (25); 20 were invalided for injury. Cerebro-spinal fever caused 10 deaths. When an epidemic threatens, the practice is to space the men out; barrack rooms are warmed; efforts are made to detect carriers, who are isolated for six weeks; and nasal douching and gargling are encouraged in all ranks. Of pulmonary tuberculosis 23 new cases were notified. Fresh cases of venereal disease were fewer this year; they are more frequent abroad than at home. The average number off duty from influenza was 26 men per day; from pharyngitis, 25·6; from tonsillitis, 22·4; and from gonorrhœa, 62·2. Sandfly fever was more prevalent in Iraq than in the previous year; the summer was exceptionally cool, so cases of heat exhaustion were fewer. The hospital at Hinaidi was whitened externally and so cooled, and cold ventilation contrived for the heat-stroke room. "Cold storage" of troops was achieved by arranging a summer camp away northward of Mosul. Chloramine is approved for water sterilisation; Catadyn was tried but a practical method of using it has not yet, it is said, been evolved. Casualties used to be carried in a Neil Robertson stretcher lashed to the outside of an aeroplane; they are now carried inside the fuselage, as if in a marsupial pouch, being emplaned through the bomber's opening of the aeroplane. This arrangement is said to give a much greater peace of mind to the patient. Of officers liable to fly, 95 per cent. were found fit. The chief cause for rejection of recruits was dental defect; of 2039 found fit, 106 had perfect teeth. The information given in the numerous tables dotted through the report are instructive.

[1] H.M. Stationery Office. 1931. Pp. 70. 1s. 6d.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 31ST, 1932

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 19 (last week 16); scarlet fever, 2033; diphtheria, 825; enteric fever, 27; acute pneumonia (primary or influenzal), 2017; puerperal fever, 26; puerperal pyrexia, 109; cerebro-spinal fever, 41; acute poliomyelitis, 7; encephalitis lethargica, 5; dysentery, 1; ophthalmia neonatorum, 79. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Jan. 3rd–4th was as follows:—Small-pox, 75 under treatment, 2 under observation (last week 63 and 0 respectively); scarlet fever, 1879; diphtheria, 1719; enteric fever, 12; measles, 259; whooping-cough, 469; puerperal fever, 25 (plus 11 babies); encephalitis lethargica, 229; poliomyelitis, 3; "other diseases," 240. At St. Margaret's Hospital there were 11 babies (plus 6 mothers) with ophthalmia neonatorum.

Deaths.—In 117 great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 32 (0) from measles, 9 (3) from scarlet fever, 28 (3) from whooping-cough, 44 (19) from diphtheria, 44 (8) from diarrhœa and enteritis under two years, and 303 (25) from influenza. The figures in parentheses are those for London itself.

The fatal case of enteric fever occurred at Brighton. Measles caused 8 deaths at Birmingham, 7 at Liverpool, 4 at Leicester. Three deaths from whooping-cough were reported from Liverpool and from Sheffield. The fatal cases of influenza were reported from 61 great towns, the largest number of deaths being 92 at Birmingham, 24 at Newcastle-on-Tyne, 23 at Sunderland, 8 at Southampton, 7 at Portsmouth, 6 each at Leeds, West Hartlepool, and Walsall. In the same week Glasgow reported 86 deaths from influenza and 10 from whooping-cough.

The number of stillbirths notified during the week was 253 (corresponding to a rate of 49 per 1000 total births), including 38 in London.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—At a dinner meeting of this society to be held at the Hotel Rembrandt, Brompton-road, London, S.W., to-day, Friday, Jan. 13th, at 7.15 for 7.30 P.M., Mr. Timbrell Fisher will open a discussion on Arthritis, and Mr. Alan Todd will speak on the Orthopædic Treatment of the disease.

SPECIAL ARTICLES

TUBERCULOSIS ON THE WITWATERSRAND

THE EFFECT OF MINE EMPLOYMENT UPON THE NATIVE WORKER

DURING 1925 the Transvaal Chamber of Mines had under consideration the advisability of instituting an intensive campaign against tuberculosis on the mines within its organisation. Preliminary investigation very soon proved that the problem could not be adequately investigated as a purely local one, confined merely to the native mine labourers employed temporarily upon the Witwatersrand. Not only was it essential to extend the field of inquiry to the native territories from which the labour force is recruited, but in addition many unanticipated lines of investigation proved inevitable. This led, in 1926, to the formation of a Tuberculosis Research Committee, composed, under the chairmanship of Sir Spencer Lister, of representatives of the Union Government, the South African Institute for Medical Research, and the Transvaal Chamber of Mines. The main objects of inquiry were twofold :—

(1) The extension of knowledge concerning tuberculosis as it occurs in South Africa, and more particularly in its relation to the native races ; and

(2) The diminution of the morbidity and mortality from tuberculosis amongst the European and native miners in South Africa, most of whom are employed in the gold-mining industry on the Rand.

Vital statistics concerning the native populations were non-existent, the extent of their tuberculisation was unknown, the fate of those who, having developed tuberculosis during their employment on the mines, were repatriated to their distant homes was but surmised ; and of the part that these natives played in spreading the infection amongst their families and others in the kraals there was no evidence. It is obvious that the committee were faced with a very difficult but important problem of industrial and public health. The result of the many lines of investigation they instigated are coördinated in a report issued as one of the publications of the South African Institute for Medical Research.[1] Interspersed in the report is a valuable running commentary by Prof. Lyle Cummins on the evidence collected and the conclusions reached.

TUBERCULOSIS IN VIRGIN SOIL

The attention of the committee was first devoted to general considerations upon tuberculosis in virgin soil, and they summarise the work of previous investigators to establish the point that members of isolated communities exhibit a marked susceptibility to tuberculosis when brought into contact with infection, and that although the infection may be fairly well tolerated under natural or tribal conditions, it is likely to lead to fatal results when accompanied by a change in occupation, food, housing, and mode of life. A historical survey shows that little or nothing is known as to the existence of the disease amongst the Bantu tribes prior to their contact with the white races, but that there is considerable reason to believe that it must have been very rare amongst them under their primitive conditions. However, the infection had already taken a firm hold amongst them in the first half of the nineteenth century, at least in those places where the existence of military, trading, missionary, and other centres ensured close touch between Europeans and natives, and provided efficient means of recognising its existence. On the other hand, Maynard's observations in 1912 on tuberculisation (by means of Calmette's ophthalmo-reaction) suggested strongly that a large proportion of natives from Nyassa and Mozambique arrived at the Rand free from any considerable contact with tuberculosis prior to their engagement.

TUBERCULOSIS AMONG RECRUITS

This result is not supported by the large-scale investigations of the present committee. Of nearly 60,000 natives applying for engagement at the mines, 72 per cent. were found to give a positive response to a single intradermal test with one-tenth of 1 c.cm. of 1/5000 old tuberculin. Repeated tests with stronger solutions would, it is believed, probably show that 90 per cent. of the boys applying for engagement are bringing their tuberculosis with them to the extent of giving a positive response to the tuberculin test. In addition, extensive investigation in the native territories showed a high degree of tuberculisation as judged by the tuberculin test, and it is stated that the incidence of tuberculosis is higher in mine boys coming from the least tuberculised area. This suggests that the tuberculosis of the native labourers is not necessarily acquired on the mines ab initio, but that the disease may develop either through super-infection or through stress of work or other circumstances. Confirmatory evidence on this point is that amongst new recruits, with no evidence of previous mining service, dying from conditions other than tuberculosis within a few days of their arrival, there have been found a certain number of cases with definite tuberculous lesions, clear proof that some natives do arrive already infected. To be quite certain that these recruits have not had previous service at the mines is, however, admitted to be very difficult.

RESISTANCE TO INFECTION

Observation of the tuberculin-tested boys, for periods up to two and a half years after the test, showed, contrary to the evidence cited above relative to area of recruitment, that those yielding a positive reaction to this test were more likely to develop a recognisable tuberculosis than those yielding no response, the ratio of the incidence being approximately two to one. In addition, the possession of tuberculo-allergy was not associated to any useful extent with the ability to modify an after-coming tuberculosis. On the whole, therefore, it appears evident that these natives, infected during their childhood or adolescence in the kraals where tuberculosis is, according to the available evidence, now endemic, have, in many cases, developed only sufficient resistance to keep their initial lesions latent under the easy conditions of tribal life. For the new and strenuous conditions of life and work on the mines the resistance of at least a certain proportion of them is quite insufficient. In their search for causation the committee has scrutinised these conditions very closely. On recruitment there is the long and arduous journey from the territories to the Rand, the change from the warm levels of the African coast to a climate which is, at least in the winter months, very cold,

[1] Publications of the South African Institute for Medical Research, No. 30, vol. v. Tuberculosis in South African Natives, with special references to the disease amongst the mine labourers on the Witwatersrand. 1932. Pp. 429.

dry, and dusty. Further investigation, the committee recommends, should be made into the conditions of transport. Apart from the minority that contracts or develops bacterial disease, the natives appear to benefit in health by their life in the mine compounds, for the majority gain in weight during their period of service.

PROTECTIVE MEASURES

Improvements could be introduced, the committee believes, in the direction of having fewer occupants per room and better separation of the individual bunks in each room. At present, in Prof. Lyle Cummins's opinion, the conditions of housing appear calculated to facilitate the spread of influenza and other respiratory infections. The diet supplied to the native workers could be improved by the additions of vitamins A and D, in both of which it is somewhat deficient. Serious difficulties in the way of this reform lie in the conservative customs and habits of the natives and in the cost—an extra penny a day per native involves an additional expenditure of £300,000 per annum. Another problem to be considered in relation to diet is the native custom of taking food only twice daily, shortly after rising and again in the late afternoon. Such a habit may not be detrimental to health under the relatively easy life in the kraals, but it is another matter when the native is carrying out eight hours of continuous muscular work (with an average of 10½ hours in all underground), to all intents and purposes on an empty stomach. This arrangement is obviously unsatisfactory, and, the committee concludes, should be capable of being improved with advantage to all concerned. A technical problem of importance is involved in the protection of the workers, during their return from hard work in the great heat of the deep levels, from sudden changes in air temperatures and velocities, while there should be a gradual "acclimatisation" of new recruits to their work in deep mining. On all deep-level mines there does now exist a system of "entering" new boys through a series of graduated tasks, and the committee recommends that this system should be strictly adhered to and, if possible, improved.

MEDICAL CARE OF REPATRIATED NATIVES

Such are some of the conditions of life at the mines which the committee has passed under review. In addition, they point out that since the endemic tuberculosis of the native territories constitutes a danger to the mines, and the tuberculosis cases repatriated from the mines involves a danger to the territories, any comprehensive anti-tuberculosis policy must include measures not only on the Witwatersrand but also in the native territories. At present there is no organised medical service in the latter, and the majority of the subjects of the Union Government, the committee states, have no hope of medical aid beyond what they may obtain from their own witch-doctors. The absence of reliable vital statistics seriously impedes the planning of any organised campaign against tuberculosis. Investigations carried out in the territories show that faulty conditions of life and diet before coming to the mines may predispose to a danger of breakdown in health. The committee urges the appointment by the industry of a medical officer to travel in the native territories, and to be specially charged with the duty of dealing with tuberculosis among repatriated mine natives and in areas in which intensive recruiting takes place. At present a sample inquiry by Dr. Peter Allan suggests that of repatriated boys, at least 60 per cent. are dead within two years (30 per cent. of the cases were untraced, and possibly many of these had died). According to the rather slender evidence available familial spread from these repatriated cases was not a very common phenomenon, perhaps owing to the rapid termination by death. All the evidence, clinical, pathological, and statistical, shows that the new mine natives run the greatest risk, and that among them the disease is of a very acute and severe type (taken over two years' duration the fatality rate is estimated to be 70 per cent.). The "long-service" natives learn to tolerate tuberculosis to a greater extent, and may, perhaps, therefore serve as a reservoir of infection.

INCIDENCE OF TUBERCULOSIS ON THE RAND

An accurate measure of the actual incidence of tuberculosis on the Rand is an exceedingly difficult thing to attain. The labour turnover approximates, on the gold mines, 100 per cent.; the age-distribution and length of service of the workers are only approximately known. The workers are selected under a system of rigorous initial medical examinations; convalescent natives whom the mine medical officers regard as unfit for further work are repatriated. It is essential to know whether the measure is really inclusive of all tuberculosis or only of tuberculosis "under the Miners' Phthisis Act"—i.e., cases expectorating tubercle bacilli, or with closed tuberculosis of the lungs or respiratory organs to such a degree as seriously to impair working capacity and render prohibition of working underground advisable in the interests of health. These factors inevitably throw doubt upon the conclusion reached in the statistical section of the report that "many European countries and countries inhabited by European stocks have a prevalence rate of tuberculosis no lower than that obtaining among our mine natives for the same age-group." In fact, in an earlier section (p. 56) the committee concludes "that an exact weighing of the morbidity and mortality experience . . . . to enable comparison with similar experience in more settled industrial populations is impossible, and even a close approximation can hardly be arrived at on the data at present available." Further statistical returns are required (though comparability with European countries may never be possible), and for this purpose, and to ensure continuity of policy of investigations and application of suitable anti-tuberculosis measures on the mines, the committee recommends to the Chamber of Mines that a Standing Advisory Health Committee be appointed and maintained by it.

The report is a most valuable and comprehensive survey of an important problem—regarded from the economic aspect alone it costs the industry something like a million pounds annually in compensation—and the findings of the committee should certainly be followed up.

CITY OF DUBLIN SKIN AND CANCER HOSPITAL.—At the annual meeting it was stated that, in addition to the money lost directly by exclusion from the sweepstakes, the hospital has lost indirectly part of its voluntary incomes "as the inevitable tendency of the publication of the enormous amounts which have been made available for the participating hospitals has been to dry up the wells of charity." During the year there were 276 in-patients, all suffering from cancer or lupus; the out-patient department is chiefly concerned with skin diseases. The medical report expresses satisfaction with the results of the fluorescein X ray treatment and the treatment of cancer of the uterus by the combined methods of radium and deep X rays.

CONFERENCE OF EDUCATIONAL ASSOCIATIONS

In the course of this conference which was held at University College, London, from Jan. 2nd to 9th, the Child Guidance Council arranged a lecture on

Educational Problems in a Child Guidance Clinic

Dr. WILLIAM MOODIE said that educational knowledge or teaching experience was essential for anyone who was trying to elucidate a child's problems. At the child guidance clinic relatively few children came up with the complaint of "backwardness," but on investigation 65 per cent. of all the patients showed some discrepancy between their capacities and their performance. Backwardness did not mean mental defect; a backward child was one who was not doing all he might. One great problem was the child with an intelligence quotient of 80–85 who was neither normal nor defective. The adult's attitude and the child's own attitude towards his performance were extremely important factors. Many of these children and their parents were quite content, but trouble arose when the parent tried to thrust forward a child of subnormal capacity, or when the child needed achievement for its own satisfaction. One of the advantages of the child guidance clinic was that it obtained its information about the child indirectly. The doctor who examined the child was under the disadvantage that information about the child's mental attitudes could only be obtained while the child was exercising them. The child would "give himself away" in the test situations provided by the psychological expert. Many children showed backwardness in school subjects, although intelligent enough in other ways. These displayed on examination a fundamental difficulty in discriminating form and position. Their trouble was not "word blindness" but blindness to something more basal. About the age of 11 or 12 the faculty of appreciating the symbol developed and the difficulty disappeared, but trouble then arose because at that age the child was expected to use his ability and was no longer being taught. Specific difficulties with circumscribed subjects were almost always emotional. The power of abstract thinking increased enormously round about adolescence, and emotional difficulties at that age might retard or throw back educational performance. The chief falling-off was usually in calculation.

Children were sometimes kept from school by their doctors on the pretext that they must "rest their brains," and they never got over the loss. It would be as sensible to say: "He is growing too fast; do not give him enough to eat." Later opportunities might enable the child to make up for the educational chances missed, but nothing could make up for the social education he had lost during the period at home. Children were often said to be "lazy," but was there any child who failed and liked it, or "could do better if he liked"?

In many cases, said Dr. Moodie, physical difficulties were responsible for educational trouble. Sense disturbances, such as partial blindness and partial deafness, were handicaps to education, and astoundingly difficult to identify. Many children, both defective and normal, were inattentive. These children were often fatigued; teachers realised the importance of fatigue better than doctors did. Children might live and sleep in noisy surroundings so that their sleep was always disturbed: sound, light, and vibration influences were continually assaulting them, even though they got their normal hours of sleep. Malnutrition might be the cause of educational difficulties, or the child might suffer from wrongful feeding, but on the whole it was astonishing how well London children were fed. The idea of sepsis as a cause of disorders in children was overdone; the tonsils had a useful function. The manifestations of nervous conditions, such as chorea, were often emotionally determined. Epilepsy was responsible for many difficulties, and was often not recognised.

The question must be faced whether or not society was going all wrong in the treatment of its young. All difficulties were ascribed, more or less, to repression, and punishment was said to be useless. Most of the problems of child guidance would never arise if the children had been handled differently in earlier days. The only real problem child was the child who failed to be guided as other normal children had been guided. The swing away from advice, guidance, and discipline was wrong. Probation was a temporising and hoping for the best; it was not constructive. Parents to-day did not know what to believe or to do. Educationalists had a chance of doing something; they could sit back and think, for they had not the emotional problems towards the children that parents had. A little more hard handling was indicated. Child guidance had learned enough by now to distinguish between punishment and corporal punishment, between freedom and licence, between repression and discipline. Part of the educational campaign of child guidance and educational authorities was to stress to parents their responsibility. Coöperation between teacher and parent was of the greatest importance, and more and better classification was needed, especially temperamental classification.

The Place of Punishment in Child-training

Dr. F. C. SHRUBSALL delivered a lecture to the Child Study Society on this subject. The psychiatrist, he said, might see cases whose mental trouble could be traced back to the effects of punishment, but those who dealt with delinquents saw another side of the picture: people who were brought almost to the foot of the scaffold as a result of not having the right punishment at the right time. Both points of view were right, and a balance between them must be found. In considering punishment the idea of vengeance must be excluded and the formative aspects of punishment must be considered mainly, even the reformative aspect taking second place. All parents must feel willing to join in the general confession that they had left undone those things they ought to have done, and done those things they ought not to have done. The young child, like the animal, directed its life on the pleasure-pain principle, and learnt by example far more than by precept. In primitive communities there was no didactic punishment, but unruly children doubtless met with rough handling from their outraged relatives, and their ability to stand hardship was severely tested at the period of initiation. In tribes of slightly higher culture whipping by a "devil" was supposed to free the offender from the effects of his misconduct. In one initiation ceremony the boy received three severe thrashings: the first to teach him to obey the tribe, the second to teach him to obey his father, and the third to teach him in no circumstances whatever to obey his mother. The establishment and persistence

of corporal punishment in British schools was due to the two great literary influences dominant in the period of their foundation: the Greek and the Hebrew. In Sparta and Greece, boys over 7 went to boarding-school, where there was a well-developed prefectorial system, the seniors having the right to whip the juniors. In the Bible there were various passages suggesting that whipping was desirable, although when the original Hebrew was considered it was quite clear that the basic idea was one of training for the child's own good. The disappearance of corporal punishment was no doubt largely due to the greater sense of companionship between children and adults. Even the most devoted child-lover, however, was apt to admit the necessity for punishing a child that insisted on running into the road, and the argument applied equally well to other dangerous practices. A training which allowed the child to do as it liked in the hope that it would eventually choose the best would not fit it for life in the world to-day. There was probably no child psychologist in existence who, having a child of his or her own, had never spanked it.

It was difficult, he said, to see why dermal pain was regarded as so unsuitable a method of correction. It was through dermal stimuli that the young thing distinguished between the self and the non-self, and learned to avoid harmful objects. The burnt child feared the fire, and the relation between the action in touching the fire and the painful result was immediate. Only when the result was immediate could the necessary association be set up. A delayed punishment or a subsequent deprivation was to the young child either unnoticed or else just one of those inexplicable things that were constantly happening. An immediate smack set up an association which would be remembered. Punishment must be immediate and should be given in anger. The emotion of anger was quite well understood by the child, and had no ill-effects, but reasoning with it and giving it time for reflection might alarm it considerably by threatening its sense of home security. The habit of absolute obedience must be established before school age, but rebellion should be deflected rather than punished, and punishment should not be given for honest experiments. The child must learn the difference between the command that had to be obeyed and the mere suggestion; it was not fair to use the same tone for both.

The alternatives to physical pain were unsatisfactory. A tongue-lashing might inflict far more damage on the nervous system than any number of blows. At the school age it was important to reserve punishment for real offences. The important offence at this age was the offence against personal control. Nobody took it very seriously if a small boy stole apples from an orchard in the country, and the farmer's vengeance was all part of the game, but when the town child had to steal his apples from crates, a great deal more fuss was aroused. One very important thing was that the child should never believe himself immune from corporal punishment, even if that punishment was never applied.

Risks of Competitive Games and Sports

At a meeting of the Medical Officers of Schools Association the chair was taken by Dr. G. E. FRIEND, and Dr. R. COVE-SMITH opened a discussion on this subject. Sports and games, he said, were not physical exercises only but also of mental and moral value; body, mind, and spirit constituted the tripod on which the human being rested, and if one were longer or shorter than the others the whole individual would be unbalanced. Men should be trained like dancers to keep step with the rhythms of life. In practice there was a great tendency for school games to become a tyranny instead of a creative outlet and an opportunity for the liberal education of the body. Physical training was far too often in the hands of people with little or no knowledge of anatomy or physiology. The organised games of school life could profitably be replaced by fencing, camping, scoutcraft, spontaneous play, morris-dancing, and swimming. The competitive character of games tended to take away a great deal of the fun, and they became orgies of record-breaking and cup-hunting. Moreover, the competitive spirit directly tilted against the production of a satisfactory citizen, whose keyword should be "coöperation," and added an emotional to a physical strain. Whereas physical fatigue promoted sleep and recuperation, emotional fatigue prevented sleep. Further, the boy who was good at games got overtrained, and the others were neglected. It was undesirable in every way for the young child to be competitive.

Dr. J. LAMBERT said that the competitive spirit was essential in the development of character. The non-competitive game ceased to attract the boy as he grew older, and he found the competitive element a welcome break in the monotony of drill. The child under 9 was much less liable to serious injury; his bones and muscles were more elastic and he fell more lightly; also he had less determination to win, and would not run himself out in a race. Dr. Lambert produced statistics from his own experience to show the comparative rarity of injury in preparatory schools, but pointed out that when a special inquiry had been made recently only six fatal cases could be found in all the public schools in the country. Two had occurred in football, two in cricket, one in diving, and one in high jumping. The worst fractures he had seen had been due to inattention in the field at cricket. The danger in school games lay in the possibility of a tyranny being set up by a too-enthusiastic master or captain, and in unequal grouping of boys in football and boxing. The school doctor could see that this did not happen, and could also see that the boy who had a heart damaged by some infection did not over-exercise. The healthy heart was not likely to be hurt by exercise, and its reserve limit was not reached even if the boy ran himself out. The type of boy who was most likely to suffer was the older, all-round athlete who was expected to be consistently good, and who regarded an afternoon off as an unforgivable sin; he was living keyed-up all day and every day. Dr. Lambert concluded that the dissociation of the competitive spirit from games would be a retrograde step.

The CHAIRMAN agreed with Dr. Lambert on the value of the competitive spirit, but admitted that it wanted careful watching. In his experience, casualties were 50 per cent. more numerous in house games and cup-ties than in friendly games. It was very difficult to damage the heart of a schoolboy who had adequate medical supervision.

Mr. H. G. SWEENY said that the competitive spirit had been implanted by nature and could not be eliminated. Savages did not progress because they were devoted to coöperation and had no competition. The only evil was excess.

Mr. R. E. ROPER pleaded for the transfer of school sports to the autumn term, pointing out the five-fold strain upon the child of working for certificate examinations, working for prizes, working for school examinations, training for school sports, and training

for swimming sports. He also pointed out that small children often preferred to play a game their own way, weaving a rich phantasy around it.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

THE HOUSING PROBLEM

WITHIN the last few years the housing problem has become somewhat complicated. The new statutes are causing some confusion. The cry for the removal of slums has somewhat blanketed the schemes for the provision of houses. Under one statute the removal of slums must proceed step by step with the provision of houses under grants calculated on the units housed. The local authorities have shown a considerable readiness to take up this compound scheme. Meantime, however, there is pressure with other methods. Private enterprise, as was to be expected, is asserting its claims. It is alleged that the local authority houses cannot be built to be let at sufficiently low rates. It remains to be seen whether private enterprise, however ingenious the financial arrangements, will be able to do any better. Meanwhile, compared with the earlier output of houses, the numbers have fallen off considerably. Nevertheless, the annual average from 1919 onwards has kept round about 12,000 to 13,000 a year. It is quite certain that more houses are still needed; but there will be a mixed fight in the methods of providing them. The recent change in the rate of interest has stirred up the building societies, and it is supposed that the new financial schemes will end in houses of cheaper rents. Cheaper rents are, of course, a necessity; but I am sceptical of the new methods of securing them.

WORK OF A MENTAL HOSPITAL

In the annual report of the Stirling Mental Hospital it is stated that the general quietness and orderliness in the lives of the patients is largely due to the successful efforts made in finding suitable occupations for them and so maintaining an interest in their surroundings. The methods followed have long been familiar in the Bangour Mental Hospital of the city of Edinburgh. The superintendent finds the predominant interest of the patient and sets him to appropriate work. The difference between patients managed on those lines and by the old methods of confinement can be realised only by direct inspection. Of 150 patients discharged, 98 were discharged recovered, giving a recovery-rate, calculated on the number of admission, of 37·1 for both sexes; 62 patients had recovered within six months of admission and 22 after twelve months. One man was discharged recovered who had been resident in the hospital for seven years.

A complaint made is that the institutions primarily for the treatment of mental ailments should have their hospital departments crowded out with senile cases. These could be satisfactorily cared for in some more suitable way, and it seems unfair that those old people should be certified as insane and detained under a sheriff's warrant. Most of them could be readily dealt with by utilising some of the spare accommodation in the poor-houses throughout the country, the only additional requirement being a few nurses to look after them. This problem, no doubt, will ultimately find a solution as the consolidation of institutions under the new authorities proceeds.

EDINBURGH MUNICIPAL HOSPITALS

I learn that the problem of the municipal provision of hospitals is in process of being solved satisfactorily. The difficulties of medical staffing of the hospitals seem to have been got over.

IRELAND

(FROM OUR OWN CORRESPONDENT)

MEDICAL MEN AND THE IRISH ELECTIONS

ALTHOUGH the list of candidates is not complete at the moment of writing, it looks as if medical men would be more prominent in the elections now to take place—and, one may hope, in the new Dáil—than they have in the past. For the city of Dublin there were in the last Dáil three medical deputies—Mr. T. Hennessy and Dr. Myles Keogh, both Cumann-na-n Gaedheal, and Dr. J. B. Lynch, Fianna Fail. All are again going forward. Sir James Craig is certain of re-election unopposed for Dublin University. Two members of Mr. de Valera's Government, Dr. James Ryan, Minister for Agriculture, and Dr. C. Ward, Parliamentary Secretary to the Minister for Local Government and Public Health, have again been selected as candidates for their respective constituencies, County Wexford and County Monaghan. Dr. R. E. Davitt is to contest Meath as a supporter of Mr. Cosgrave. Dr. Vincent White is again a candidate for Waterford, and Dr. Edward Dundon has been selected as a candidate for Kilkenny and Carlow, both in the Cumann-na-nGaedheal interest. On the same side Dr. T. F. O'Higgins and Dr. P. Doyle are candidates in Leix and Offaly (Queen's and King's Counties).

AUSTRALASIA

(FROM OUR OWN CORRESPONDENT)

POST-OPERATIVE TETANUS

TETANUS developed in two cases recently operated on consecutively at the Wollongong Hospital, New South Wales. Both patients, who lived in adjoining houses, were operated on for removal of the appendix by the same surgeon, and both died. An inquest was held, and after a thorough investigation of the catgut used, the coroner held that it was responsible for the tetanus. The catgut was stated to have been of German origin.

Within the past week a further case of post-operative tetanus has developed in South Sydney Hospital, Sydney. The catgut used on this occasion was the same as that used at Wollongong. The Minister for Public Health, on the advice of the government microbiologist, has sent a communication to all hospitals in New South Wales, stating the brand of the catgut used. He suggests that all available supplies of this catgut should be discarded and further, that for the future only catgut of British origin should be employed.

POST-GRADUATE TEACHING

Post-graduate work in New South Wales was carried out in a desultory manner until several years ago, when the New South Wales branch of the British Medical Association undertook to put the organisation of post-graduate work on a more satisfactory footing, by appointing a committee to develop it. The branch has now disbanded its own committee, and has founded a permanent post-graduate

committee, on similar lines to the committee which for some years has carried out very satisfactory programmes of post-graduate work in Melbourne. The new New South Wales committee, which is representative of Sydney University and the eight larger metropolitan hospitals, has already begun work.

AIR TRANSPORT OF PATIENTS

Transport of the sick by aeroplane is becoming a regular feature of the Australian outback, and in Queensland a regular aeroplane medical service has long been in operation. It is almost a common thing for a specialist to travel 400 or 500 miles by aeroplane, and recently a Sydney doctor travelled 1400 miles by aeroplane to Mount Isa to attend a sick woman. The longest of these journeys was probably in 1930, when a Quantas, Limited, aeroplane was engaged by the Australian Inland Mission to bring a patient from Port Darwin to Sydney, a distance of nearly 2000 miles.

MEDICINE AND THE LAW

Rejection of Finger-print Identification

SCIENTIFIC research may equip Scotland Yard with methods for the detection and conviction of a criminal, but a British jury cannot be compelled to accept them. The system of identification by finger-prints is an example. The work of Dr. Henry Faulds, Sir Francis Galton, and Sir William Herschel, established its value; Sir Edward Henry thoroughly tested its applicability for criminological purposes; yet the application remains haphazard. However useful to the police in the narrowing of the field of detective investigation, the system is still an uncertain weapon for a prosecution to rely upon exclusively. In R. *v.* Chadwick, 25 years ago, where it was a question of convicting a burglar by the evidence of finger-prints left upon a champagne bottle, the judge warned a Birmingham jury that it would not be safe to accept such evidence as a basis for conviction; the jury nevertheless found the accused guilty. A converse situation was reported lately from Brighton quarter sessions. A Brighton office had been broken into; pieces of glass found in a waste-paper basket in the office were carefully taken out by a charwoman, wrapped in a duster, and given to the police. A Scotland Yard detective-inspector stated in the witness-box that he was positive the finger-prints on the glass were those of the accused; he had never known the impressions of two persons' finger-prints to be alike. The Recorder explained to the jury the significance of this identification but the jury rejected it. Scientific research may be decisive as to the finger-print system; popular opinion may still disregard it.

On Monday last, the centenary of Herschel's birth, the *Times* published an interesting account of the official development of the finger-print system, written by Sir John Moylan, who explains the significance of Mr. Battley's new method of using single finger-prints. The article may be said, with all respect to the Brighton court, to carry conviction.

Identification from Photographs

If judges or juries look with suspicion upon the unfamiliar, they may go to the other extreme where the operation of some scientific process is well established. Thus photography is readily accepted in the law courts in spite of its technical limitations (in the matter, for instance, of perspective) and in spite of the fact that the individual use of its results may be fallacious. The police force preserves photographic records of criminals and employs them where the author of a crime is undiscovered. Suppose that a burglary has been committed and that the butler, who says he saw a man running away from the house, is shown a series of photographs by the police and is asked if he can pick out the man he saw. Suppose that, after prolonged study of the photographs of A, B, C, and D, the butler says that the photograph of A is very like the wanted man. If the butler afterwards picks out A at an identification parade or identifies him in the witness-box at the trial, there is a real danger that he will be identifying A from his recollection of the photograph of A rather than from his recollection of the man seen running away from the house. This point was taken last year in the Court of Criminal Appeal in R. *v.* Hinds, a case where the main issue was that of identity. The appellant's counsel asked the Court to upset the conviction on the ground that the judge at trial had not specially warned the jury that the value of identification by a witness might be lessened by the fact that the witness had previously picked out the photograph of the accused from a series of photographs displayed to him by the police. The Court of Criminal Appeal, however, dismissed the appeal and held that no such warning was necessary.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Capt. T. W. Jeffery, retd., to be Medical Officer for the R.N. Armament Depôt, Lodge Hill and Upnor, vice the late Surg. Capt. W. G. K. Barnes, and Surg. Capt. J. J. H. Rooney, retd., to be Medical Officer for the R.N. Torpedo Factory, Greenock, and Admiralty Surgeon and Agent for Greenock, vice Surg. Comdr. F. D. Lamley.

Surg. Lt. E. R. P. Williams to be Surg. Lt.-Comdr.

Surg. Lt. (D) H. E. Rose to be Surg. Lt.-Comdr. (D).

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Capt. R. J. Willan, K.H.S., is placed on the retd. list.

Surg. Sub-Lt. G. H. C. R. Critten, to *Royal Oak*.

ROYAL ARMY MEDICAL CORPS

Majs. M. J. Williamson and A. D. Stirling to be Bt. Lt.-Cols.

Capt. S. G. M. Lynch, from R.A.M.C., T.A., to be Lt. (on prob.).

Lt. N. H. Lindsay to be Capt. (prov.).

Lt. (on prob.) H. C. M. Walton is restd. to the estabt.

Lt. W. B. Williams and Lt. (on prob.) M. Fallon resign their commns.

TERRITORIAL ARMY

Maj. A. S. Hebblethwaite to be Bt. Lt.-Col.

Capt. J. E. McCartney (late R.A.M.C.) to be Capt.

J. H. Taylor (late Cadet Lce.-Corpl. Glasgow Univ. Contgt., Sen. Div., O.T.C.) to be Lt.

A. G. W. Whitfield (late Cadet Corpl. Wellingborough Sch. Contgt., Jun. Div., O.T.C.) to be Lt.

INDIAN MEDICAL SERVICE

Lt.-Col. M. R. C. MacWatters retires.

COLONIAL MEDICAL SERVICES

Dr. H. S. Lawrence has been appointed Medical Officer of Health, Jamaica, and Dr. T. W. Ware has been promoted Health Officer, Hong-Kong.

Surg. Capt. J. B. Ronaldson, R.N.V.R., has been appointed an Honorary Physician to the King in place of Surg. Capt. R. J. Willan, R.N.V.R., who has retired.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—Amongst the latest contributions to this fund is the sum of £1000, being the annual subscription of H.M. the King.

AN INVESTIGATION OF THE MENOPAUSE IN ONE THOUSAND WOMEN

In October, 1926, a subcommittee was appointed by the Council of the Medical Women's Federation for the purpose of investigating, from the clinical aspect, phenomena associated with the menopause. The data on which this report, which is here published in full, is based were collected on 1220 questionnaire forms, each of which was filled in by a medical woman as the result of a personal interview with the individual from whom the information was obtained. The inquiry referred to women in whom five years or more had elapsed since the cessation of the menses. Their ages, when interviewed, varied from 29 to 91.

The Report

In order that the source of the data should include women of normal health and in all conditions of life, the subjects of the questionnaire were, as far as possible, other than patients. They included married and single women of various social status, leading an ordinary home life, women engaged in or retired from the various professions, intellectual and manual occupations and domestic work. They lived in cities, industrial areas, and rural districts in various parts of England and Scotland. Many of them were in public assistance institutions in different parts of the country. Apart from the advantage of the ease with which large numbers could be thus approached, it was thought that they would represent a good average of health in view of the fact that their presence in these institutions was determined by matters of finance, or accident, or death of relations, rather than by their own health.

Our inquiry was spread over a period of five years, and when completed the 1220 questionnaire forms were sent to a statistician, Mr. W. T. Russell, who compiled many tables of figures and wrote a full analytical report, which is quoted freely in the following paragraphs. We are greatly indebted to Mr. Russell for this work, without which the real values of our material could not have been obtained. He found 1197 of the schedules sufficiently complete for use in the investigation; 835 of these referred to married, and 362 to single women. Here, in order to reduce the quotation of figures to a minimum, percentages only are given and they are, as far as possible, incorporated in the text, which deals with the main points of general interest emerging from the investigation. These are considered under the following headings:—

1. The proportion of women free from menopausal symptoms.
2. The frequency of the following symptoms: flushing, hæmorrhage, giddiness, headache, nervous instability, pain in breasts, "rheumatic" pains, changes in the thyroid gland, obesity.
3. Incapacity due to the menopause.
4. Age of onset and cessation of the menses.
5. The effect of the following factors on the prevalence of symptoms and age at the menopause: age of onset of the catamenia, miscarriage and childbearing, menstrual history, previous health.
6. Comparison of the points mentioned above in married and unmarried women.

THE PROPORTION OF WOMEN FREE FROM MENOPAUSAL SYMPTOMS

Of the total number of women questioned, 15·8 per cent. stated that they had passed through the menopause without any symptoms. The frequency in the case of single women was 20·4 per cent. and of married women 13·8 per cent., a difference of 6·6 per cent., which, when tested against the usual criteria for statistical significance is of importance and is not due to chance.

SYMPTOMS ASSOCIATED WITH THE MENOPAUSE

(*a*) *Flushing.*—Of all the symptoms associated with the menopause, flushing was the most frequent. It occurred in 62·3 per cent. of the total number, and in 4·8 per cent. of these cases it was the only symptom noticed. The intensity of the flushing varied very much. In some it was barely perceptible, others complained of severe "heats" accompanied by sweating many times during the day and night. Many of the women regarded the inconvenience of flushing a trivial matter compared with the discomfort they had suffered from blushing in their youth. Others considered it the most serious and weakening of the symptoms associated with the menopause. The duration of the flushing period was also very varied. In the majority it occurred on and off for a period of about two years, in many cases it lasted five to ten years, while a considerable number, even some in their seventies and eighties, said that they had never been entirely free from flushing since the change of life. It was a common experience for the flushing to occur or to be more marked during a state of fatigue or of debility after an illness.

TABLE I.—*Showing frequency of symptoms*

—	Percentage frequency amongst—		
	Total women.	Married women.	Single women.
No symptoms	15·8	13·8	20·4
Flushing	62·3	64·8	59·1
Hæmorrhage	20·9	22·6	17·1
Giddiness	39·7	42·3	34·3
Headache	44·6	45·9	41·7
Nervous instability	30·9	30·4	32·0
Pain in breasts	6·3	6·7	5·0
"Rheumatic" pains	23·7	24·9	21·0
Change in thyroid	2·0	1·8	2·5
Miscellaneous	1·3	1·1	1·9
Obesity	34·2	39·4	22·7

(*b*) *Other symptoms.*—Of the other symptoms inquired into it must be explained that under the heading "rheumatic" pains are grouped cases of arthritis and fibrositis, it being found impossible to differentiate between these conditions in many of the histories obtained. The term hæmorrhage was used for all cases in which excessive uterine loss was noted, either on one or more occasions or extending over several periods.

As will be seen in Table I., flushing, headache, giddiness, obesity, and nervous instability were in numerical order the most frequent among the married women. The sequence in the case of single women was flushing, headache, giddiness, nervous instability, and obesity. "Rheumatic" pains and hæmorrhage were next in frequency in both groups, and pains in the breast and changes in the thyroid were at the lower end of the scale. Greater frequency, in varying degrees, was shown, in the case of married women, of all the following symptoms: flushing, headache, giddiness, "rheumatic" pains, hæmorrhage, pains in the breast, and obesity. In the last-mentioned, the relative disparity was very marked, the percentage value for single women being only 57 per cent. of that found for married women. On the other hand, there was a slight excess (5 per cent.) in the proportion of nervous instability amongst single as compared with married women, and, although the actual number of thyroid changes was very small in the two groups, the proportion among the single was 39 per cent. greater than that among the married.

INCAPACITY DUE TO THE MENOPAUSE

Under the heading "incapacitated" were grouped all the women who, on account of some disturbance of health attributed to the menopause, were obliged to lie up or absent themselves from their work on one only or on more occasions. The proportion was 10·3 per cent. In this there was little difference between the married and single women, the percentage being 10·9 and 9·1 respectively.

In view of the general impression acquired from the literature on the subject, it was somewhat surprising to find that approximately 900 out of 1000 unselected

women stated that they had carried on their daily routine without a single interruption due to menopausal symptoms. In support of these assertions, it may be added that one of the difficulties in collecting data for the investigation from other than patients has been the uncertainty of heads of departments in business houses as to which of the women employed should be questioned, since in so many over 50 years of age no signs of having passed the "change of life" had been detected. A similar problem was experienced in approaching women of all classes, who, in daily contact with others, had revealed no menopausal disturbance, such as irritability of temper commonly thought to be inseparable from this phase of a woman's life.

AGE OF ONSET AND CESSATION OF MENSES

In questioning a number of women, most of whom were over 50, it may be surmised that it was not possible to get accurate information of events and sensations which had occurred over 35 years previously. It was, however, found that, even in the very old women, recollection as to the age of onset and the early experiences of menstruation were firmly fixed. It was not at all uncommon for the exact date and day of the week of the first occurrence of menstrual discharge to be remembered. This was not so with regard to details concerning the "change of life." Several were unable to state their exact age at the last period, even if only five years previously, though the large majority could give definite information as to age and symptoms.

It was found that the ages of onset of menstruation ranged from 9 to 21 years. In the age-group 13–15 years, inclusive, 55 per cent. of the total observations were located. In approximately 13 per cent. of the whole series, the menstrual periods did not begin until after the age of 17 years. The age of the last period ranged from 23–60 years, excluding one who stated that she continued to menstruate regularly until she was 66, and another until she was 73. Cases of artificially induced menopause were not included. The proportion of women who had their last period before reaching their 40th year was 8 per cent. In the ensuing five years, 22·5 per cent. reached their menopause, and between 45 and 55 years 64·7 per cent. of the total cases occurred. At the age of 55 and upwards, the proportion fell to less than 5 per cent. The maximum frequency for both single and married women occurred at 50 years. But the marked excess in this age-group, followed by the marked defect in age-group 51, as seen in Table II., is in part due to the tendency for women whose memories were not accurate to state their age in "round figures." A similar tendency is exhibited around the ages 40 and 45.

TABLE II.—*Showing the age-incidence in individual years of those women who had their menopause between the 38th and 52nd year*

Age in years.	Married	Single.	Total women.	Age in years.	Married	Single.	Total women.
38	13	3	16	46	48	19	67
39	12	2	14	47	39	18	57
40	63	29	92	48	61	30	91
41	26	9	35	49	56	23	79
42	38	11	49	50	114	53	167
43	39	16	55	51	26	16	42
44	21	7	28	52	55	23	78
45	71	25	96	(38–52) Total.	682	284	966

The next questions considered were the possibility of any inter-relation between the ages of onset and cessation of the menses, also whether the age of menopause was affected by childbearing. By various methods of calculation and correlation, it was proved that there was no relationship exhibited in the data between the menstrual and menopausal ages of either married or single women. When menstruation began at 13, the mean age of cessation was 47·3; when it began at 18, it was 47·5. Although the mean age at menopause declines for menstrual ages over 19, not much importance can be attached to the decrease, as the values are based on small numbers. It was also found, by statistical analysis, that childbearing exerted no influence whatever on the age at the menopause. It was noted, however, in taking the histories, that a considerable number of women stated that they had not menstruated since their last confinement, although this was definitely earlier in some cases than the usual menopause age.

EFFECT OF CERTAIN FACTORS ON THE PREVALENCE OF SYMPTOMS

(*a*) *Age at the last period.*—In most instances there was little evidence that age was an influential factor in the occurrence of symptoms. There were, however, certain exceptions. The proportion of the cases of hæmorrhage increased with the age. On the other hand, there was a suggestion that obesity declined with the age.

(*b*) *Number of miscarriages.*—Among women who had had no miscarriage there was a tendency for the occurrence of menopausal symptoms to be relatively less than amongst women who had had miscarriages, especially with regard to pains in the breast, "rheumatic" pains, and obesity, but there was little evidence that an increase in the number of miscarriages accentuated the prevalence of symptoms.

(*c*) *Number of pregnancies.*—There was a tendency for the individual symptoms to be relatively more frequent amongst women who had conceived. There is, however, no substantial evidence to show that the proportion of symptoms increased with the number of conceptions, except in the group of women who had ten or more pregnancies. Amongst the 837 married women, 15·5 per cent. were never pregnant, 38·5 per cent. had 1–3 pregnancies, 7·4 per cent. had ten or more. In the last group, in which the proportion of symptoms was significantly higher, were included—

6	women	who	had	14	pregnancies.
5	"	"	"	15	"
2	"	"	"	16	"
1	"	"	"	17	"

There was, however, one symptom—namely, nervous instability—which was unaffected by pregnancy in the data. The prevalence of this symptom was just as high amongst the nullipara as amongst those who had had many children. In all probability it was a condition which prevailed among a class of women long before the menopausal age was reached.

RELATIONSHIP BETWEEN MENSTRUAL AND MENOPAUSAL SYMPTOMS

In previous paragraphs we discussed the relationship between the menstrual and the menopausal ages, and found that for all practical purposes they were unrelated—a knowledge of the one being of little use in predicting the onset of the other. These two physiological phases were then considered from another aspect. Is a woman who suffered from dysmenorrhœa more likely to suffer from symptoms during the menopause than a woman in whom menstruation was normal? To answer this question, the menstrual and menopausal data were sorted into categories, as shown in Table III.

TABLE III

Menstruation.	Married menopause.			Single menopause.			All women menopause.		
	N.	S.	Total	N.	S.	Total	N.	S.	Total
Normal	193	106	299	76	22	98	269	128	397
Severe ..	201	268	469	106	114	220	307	382	689
Total ..	394	374	768	182	136	318	576	510	1086

N. = normal; S. = severe.

It will be observed that the proportion of normal menstruation with severe menopause in married women was 106/299 (35·45 per cent.); in single women, 22/98 (22·45 per cent.); and among all women, 128/397 (32·24 per cent.). The proportion of severe

menstruation with severe menopause in married women was 268/469 (57·14 per cent.); in single women, 114/220 (51·82 per cent.); and among all women, 382/689 (55·42 per cent.).

The differences between these values—35·45 per cent. and 57·14 per cent. for married; 22·45 per cent. and 51·82 per cent. for the single; 32·24 per cent. and 53·42 per cent. for all women—are greater than those which are likely to arise by mere chance. Hence we conclude that according to these data there is some evidence that a normal menstruation tends to be followed by a normal menopause and vice versa, and that the association is slightly more defined amongst single women than married women.

It must be borne in mind that the majority of women from whom these figures were obtained, being over 55, had not so much opportunity for healthy development open to them as have girls of the present day. 57·5 per cent. of them were troubled with some menstrual disability, whereas the proportion of cases of dysmenorrhœa amongst young women is now much smaller. If then a normal menstruation is found to be associated with a symptomless menopause, there may be reason to hope that in the future there will be less disturbance of health at the "change of life."

PREVIOUS HEALTH AND MENOPAUSAL SYMPTOMS

Notes as to previous health were made in the schedules for the purpose of examining whether this factor influenced in any way the type of menopausal symptoms. In many cases the histories were indefinite, and the value of statements regarding past illnesses were difficult to assess. It was interesting to note, for instance, the importance attached to "heart trouble" by some who had reached a ripe old age. Several of the old women, including one in her 90th year complained that they had "always suffered from a weak heart," though their health had been otherwise good—no credit being allowed to the maligned organ for the fact that it still continued to beat. The records of previous health were, however, classified under "good," "fair," and "bad," and when the necessary calculations were made from this crude basis, it was found that there was only a small degree of relationship between the previous health and the type of menopausal symptoms, the coefficient of contingency being 0·203 for married and 0·137 for single women.

SUMMARY

From the analysis of the data the following points emerge:—

1. The proportion of women who carried on their usual occupation without any interruption due to symptoms attributed to the menopause was 89·7 per cent., the difference between the married and unmarried groups being insignificant.

2. The percentage of women free from all menopausal symptoms was 15·8. The percentage of women relatively free, flushing being the only symptom, was 20·6. The proportion in each case was greater in single than in married women.

3. Greater frequency in the following symptoms were found amongst married women: flushing, headache, giddiness, "rheumatic" pains, hæmorrhage, pains in the breast, and, markedly so, obesity. In nervous instability and change in the thyroid, the larger proportion was amongst the unmarried.

4. There was little or no correlation between the age of onset of menstruation and the age at the last period for either married or single women. Notwithstanding that a considerable number of women stated that the menses had not recurred after the last confinement—which was, in some cases, definitely earlier than the usual menopause age—the analysis showed that childbearing, even when allowance was made for age at marriage, in no way influenced the age at the menopause.

5. There was some evidence that normal menstruation tended to be followed by a normal menopause, and a history of dysmenorrhœa by more marked menopausal symptoms. This was slightly more defined for single than married women.

6. Previous health was a factor of no marked importance in influencing the onset or severity of menopausal symptoms.

The members of the subcommittee who presented the above report to the Council of the Medical Women's Federation were as follows: Lady Barrett, M.S. (chairman), Prof. Winifred Cullis, D.Sc., Dr. Letitia Fairfield, London; Miss Ruth Nicholson, M.S., Liverpool; Dr. Mona Macnaughton, Newcastle-on-Tyne; Dr. Cecilia F. Williamson, Ipswich; and Dr. Alice E. Sanderson Clow (hon. sec.), Cheltenham.

THE DOCTOR'S DAY

"Come, tell me how you live," I cried,
"And what it is you do!"

X.—THE CORONER

THE principal duty of a coroner is to investigate all sudden deaths of unknown cause, deaths from violence of all kinds, and all unnatural deaths—e.g., deaths from poison, anæsthetics, alcoholism, or industrial diseases. Most of the deaths requiring investigation are reported to the police station or to the coroner's office, and the coroner's officer of the borough in which the death took place then makes his inquiry and presents a written report each day to the coroner. The perusal of all these reports is the first daily duty of the coroner, and he then decides whether an inquest will be necessary, or whether the doctor can properly and safely certify the cause of death, or whether a post-mortem examination would be likely to clear up the doubt and so avoid the necessity for an inquest. If he decides that an inquest ought to be held, then he fixes the time, directs what witnesses should be summoned, orders the removal of the body to the mortuary, orders a post-mortem examination, if required, says who is to make it, and issues his warrant for the summoning of a jury when necessary—e.g., a street fatality, or a death from a factory accident. In factory cases notification is sent to the factory inspector of the time of the inquest, and if there is suspicion that the case may be one of murder or manslaughter then the coroner informs the Criminal Investigation Department at New Scotland Yard, and inquiries are set on foot by them.

Roughly about half of the cases reported to the coroner can be dealt with under the Act of 1926 by ordering a post-mortem examination, usually by an expert pathologist; if this reveals a natural death, then the case can be so certified by the coroner and no inquest will be required. Other cases requiring his attention are those where a death has occurred rather suddenly and unexpectedly, and, although there may not be any suspicion that the death is other than a natural one, yet the doctor may feel it his duty to inform the coroner of the death. A little inquiry will often clear up such a case, and will enable the coroner to authorise the doctor to issue a certificate of death. Then there is now an Act which requires all deaths of persons whose bodies it is sought to remove out of England to be reported to the coroner; a consideration of the death certificate and the general circumstances surrounding the death will generally satisfy the coroner that there is no need to hold an inquest.

INQUESTS AND JURIES

Having thus cleared his table the coroner will proceed to dispose of his daily list of inquests. He may have as many as 1500 cases reported to him in a year, and he will probably hold not far short of 800 inquests. Fortunately, a good many of these

can be held without a jury, or he would find it impossible to get through. All deaths from street accidents, all factory deaths, and, of course, all cases of murder and manslaughter require juries; in such cases there are generally counsel or solicitors, or both, and the proceedings are accordingly considerably lengthened. After the relevant witnesses have been examined and cross-examined, the coroner sums up, explains to the jury the law, generally of negligence, marshals the facts proved in evidence, directs their attention to inconsistencies and improbabilities and contradictions, and their effect upon the weight of evidence, asks the jury to decide upon the facts which they accept as the correct ones, to apply the law to those proved and accepted facts, and to return a verdict upon them accordingly. After the verdict the inquisition is signed, the fees are paid, and the court is closed.

Very rarely there is a verdict of murder or manslaughter, and in these cases the coroner has to read over the depositions to each witness, sign them and get them signed by him; he has to issue his warrant for the arrest of the accused and for his committal to prison to await trial; to give bail in case of manslaughter if he so decides; to bind over the witnesses to give evidence at the Old Bailey; and, finally, to get the formal inquisition signed by the jury. Such committals are now very few, for, under the Act of 1926, where a person has been charged before a magistrate with these offences the coroner adjourns his inquest until the termination of the criminal proceedings. From time to time, however, the coroner has cases in which, although there is suspicion, it is not sufficient to justify the police in making an arrest, and he has to deal with the matter at length. Criminal abortions belong to this class and are most unsatisfactory and difficult, for there is generally a conspiracy of silence and deceit. I believe there is a large number of these cases in London at present, but few of them come before us. When they do come they are so veiled in secrecy and so cleverly camouflaged that it is seldom possible to bring the crime home to the perpetrator. The incriminating evidence consists, as a rule, of statements made by the deceased person or by an accomplice which cannot well be admitted in such a serious charge.

DIFFICULT CASES

Complicated street smashes, where two or more vehicles are involved, present great difficulty to the coroner. Obscure cases of food poisoning, unexplained fatal fires, mysterious explosions, house collapses, flood fatalities, all kinds of factory accidents, river collisions, suicides, and scores of other problems present themselves for solution in the course of the year. All, or very nearly all, can be solved by close attention, by expert assistance, and by adjournments and continuous investigation. In cases of great public importance in London the L.C.C. will always give the coroner every assistance he may require in the matter of engaging and paying technical experts to investigate really difficult problems; thus the coroner's court may find itself listening to great engineers, architects, chemists, metallurgists, fire experts, flying experts, explosives experts, building research workers, ventilation engineers, or railway signal technicians. The viewing of the locus in quo enables him to understand what would otherwise be almost unintelligible. In certain cases of sudden death the autopsy may fail to reveal a definite cause of death; while some coronary disease or heart disease may be present, it is well within the bounds of possibility that these are not the real cause of death. Careful inquiry into the clinical history, and the absence of all signs or symptoms of poison may enable the coroner to pass the case, but it is as well, when in doubt, to exclude poisoning by ordering an analysis. In London this is easy, for we are empowered to engage and pay analysts when we feel it desirable to have a chemical or bacteriological analysis performed. It will be remembered that in the Seddon case, the Armstrong case, the Greenwood case, the Duff case, and the earlier Pritchard case medical certificates of natural deaths were given by medical practitioners, but subsequent analyses showed arsenic to be the cause of death in all these cases—a rather disturbing reflection. I look upon all sudden and unexpected deaths as suspicious if there is a history of vomiting and diarrhœa, and I take steps to avoid being led astray by such vague certificates of the cause of death as gastritis. Then, again, one must be watchful for deaths which appear to be due to cerebral hæmorrhage but which may be due to narcotic drugs.

Suicides and street fatalities provide us with the bulk of our cases for inquest, and when the suicide uses the now fashionable gas oven they are simple enough. Farewell letters in the writing of the deceased are a blessing to the busy coroner in suicides, but where the death took place as the result of a fall from a window, and no writing is left by the deceased, and there is an astute solicitor or counsel, the case may not be quite so easy. A diligent search by an experienced coroner's officer will often disclose some document which throws a light upon the cause of death; it is surprising how often such papers are overlooked. Finger-marks in the room and particularly on the window-sill now and then enable us to arrive at a conclusion.

NO LIFE SO INTERESTING OR VARIED

After a pretty long experience of life, and a considerable acquaintance with people engaged in all kinds of professions and businesses, I know of no life which is so interesting and so varied as that of a London coroner. The chief charm of the life lies in its complete independence. So long as you conduct your duties with efficiency no one can interfere with you. The Lord Chancellor can remove you from office, but only for incompetence or actual misconduct, and I have never heard of this power having been exercised. You arrange the work to suit public convenience and, subject to that, to suit yourself. One day it may be very heavy, but the next may be free. The work is always lightest when the weather is at its best, heaviest when the gloom and cold of winter render work preferable to leisure. If after months of continuous work you feel stale and weary of tragedies you can take a holiday without asking anyone's permission. All you have to do is to hand over the duties to your deputy, pay him his fee, and go away. Coroners who were appointed after the passing of the Act of 1926 must retire at 65 years of age, but in London they then receive a (maximum) pension of nearly £1000 a year, which, being non-contributory, is adequate. As regards prospects, we in London are most of us rapidly approaching the retiring age, so there will be plenty of vacancies in a few years, and I know that some of my colleagues are without assistant deputies because they cannot find suitable men.

The newly qualified medical man who is desirous of becoming a coroner may wonder how to solve the problem of earning his living as a doctor and getting called to the bar at the same time. But the bar examinations, though difficult and at times dull, are far easier than those of the medical student. Tuition courses can be carried on by correspondence, the eating of dinners in Hall is just a pleasant formality, and a call to the bar should be within the reach of the average doctor within a couple of years. If in practice in London he can pick up the routine work of a coroner by attending his inquests for a few weeks or months; once that knowledge is acquired an assistant deputyship, followed by a deputyship, should be obtainable in due course. The deputy takes the place of the coroner during his absence, through illness or other cause, such as holidays, and it is quite easy to carry on a practice at the bar, or in medicine, whilst holding one of these appointments and waiting for full coronership.

PANEL AND CONTRACT PRACTICE

A Scheme of Dental Contract Practice

WE have received from the British Dental Association a scheme of contract practice for dental work which is designed to assist the British Medical Association's proposal for a general medical service for the nation. In this proposal the view was expressed "that arrangement should be made by the community with the dental profession for a comprehensive dental service." The scheme presented by a special committee of the Dental Association deals primarily with insured persons, but it could be adapted to include dependents. It is designed to prevent dental disease and to give treatment in the very earliest stages. Dental health is shown by experience to be best maintained by examination and treatment at regular intervals. The committee thinks that a per-capita payment would be best in the public interest, as it leaves the dentist free to exercise his professional judgment, and ensures the maintenance of contact between patient and dentist so necessary to secure dental fitness. It suggests that the family dentist would become parallel to the family doctor, and that whilst some control may be necessary limits should be placed on third-party interference. In brief the scheme is this :—

Each participating dentist should provide general dental treatment to maintain every insured person on his list in a dentally sound condition in return for a fixed capitation rate per annum. Before an insured person is accepted he must be dentally sound. If he is not dentally sound the dentist would have to make him sound and be paid according to a definite scale of fees for the necessary work done. The control of the scheme would be on lines parallel to that of medical benefit under the Act, with Ministry of Health, insurance committee, and dental panel committee; a dental service subcommittee would deal with complaints, as does the medical service subcommittee.

All insured persons, after a short qualifying period, would be eligible for treatment, to include scaling, gum treatment, filling with plastics, root treatment, extractions, with local and general anæsthetics (other than prolonged), provision of dentures for maintenance of reasonable standard of mastication and general appearance, repairs, and remakes. Such things as gold and porcelain fillings, radiograms, crowns, and bridges, orthodontic apparatus, would not be included, and might be provided at an extra charge, with permission of the insurance committee. Payment to be subject to revision, but an adequate service could be provided, the committee thinks, at a capitation rate between 12*s.* 6*d.* and 16*s.*

Dentists would be required to provide suitable waiting-room and surgery accommodation, to keep records, to have stated hours of availability, and to give necessary emergency treatment. The patient would be required to be examined periodically, to be punctual, and to carry out instructions.

This scheme is theoretically good, but unfortunately the parallel between it and the medical scheme is not close in that, whilst there are quite a number of insured persons who are really fit and do not require medical attention, this is hardly ever so with their dental condition. There would thus be a very high initial cost in putting every insured person's mouth into a dentally fit condition before acceptance under the scheme. Again, practically all dental work is operative, and most insured persons would require several periods of 15–20 minutes for fillings before their mouths could be pronounced dentally fit. Most doctors can do all that is necessary for an insured person in five to ten minutes at the bedside; per contra they waste time in travelling from door to door waiting on doorsteps which the dentist does not have to do. Clearly there would have to be definite limitations of lists to enable the work to be properly carried out, and it is doubtful if the dental profession is sufficiently numerous for the purpose. Nothing is said in the scheme as to how the money is to be raised for the work, but obviously one method would be to increase the health insurance stamp on cards. It would be interesting to hear what the actuaries would say was necessary to finance such a scheme, but with an insured population of 15 millions the cost at 15*s.* per head would be over 11 million pounds, apart from administration or materials. A 100-gallon cylinder of gas at 5*s.* 8*d.* may suffice for ten average cases—still an expensive item; an anæsthetic fee at 10*s.* 6*d.* a case, payable to the doctor, would cost quite a lot.

It is thought that some such dental scheme will come into existence, for the present system of payment to dentists for work done is not satisfactory because of the frequent inability of the insured person to pay his share of the cost, when the approved society agrees to pay the other, and because dental benefit is not a statutory benefit but an additional benefit, entirely in the hands of approved societies to give or not to give as they think fit. Many societies at the present time do not give dental benefit at all, and many more refuse dental benefit to women. Some insured persons are therefore not getting dental benefit at all; others could get it if they could afford to pay their share of the cost. This is hardly a satisfactory state of affairs in view of the importance now attached to maintenance of dental fitness.

Surcharging

The surcharge of insurance practitioners in Glasgow is giving rise in newspapers to headlines such as "Danger of efficient prescriber being penalised," "Where duty becomes offensive," and so forth. However much we may regret the necessity of regulations for this purpose, or, for that matter, for any purpose under the National Health Insurance Acts, with such huge numbers of patients and with so many doctors, it is not surprising to find some who do not play the game; and as the supply of proper and sufficient medicines is paid for out of public funds it does become necessary to protect those funds from over-generous use—e.g., the prescription of a pound of cotton-wool with a proportional amount of lint for the treatment of a cut finger; or, as in a reported case, of 5 hundredweight of malt and cod-liver oil in one quarter for the patients of a firm of doctors. The procedure adopted is now fairly well known. A doctor's prescribing cost is found by pricing all his prescriptions and dividing by the number in each quarter; if this average is markedly above the average of all the other doctors for the same area, the prescriptions are scrutinised and it is thus discovered whether there is anything special in this batch to account for the higher cost. For example, there may be much insulin ordered or polyvalent anti-streptococcal serum or some obviously necessary high costing medicament which would raise the average cost.

The next procedure is for the regional medical officer to interview the practitioner, generally with a member of the panel committee for the area, to hear his explanation of the higher cost. If this is satisfactory nothing more is heard of the matter, but if not satisfactory—some cases in this category seem to indicate a complete lack of interest or responsibility in the use of public money—the matter is referred to the panel committee, who again interview the practitioner, hear his explanation, and thereupon decide whether there has been extravagance, and if

so to what amount. Here, as is pointed out in this correspondence, the doctor is definitively tried by his colleagues who know and realise his difficulties. The report of the panel committee goes to the Ministry of Health and to the insurance committee. The Ministry may think the report does not suggest adequate compensation to the public funds for the extravagance indicated, and the matter is then referred to two doctors and a lawyer, who start de novo. In this inquiry the practitioner may be helped by a legal man.

This procedure, which should by now be familiar to the parties concerned, does not, in reality, lead to many cases of surcharging. We agree with the Glasgow critics that it is a pity there have been no cases of investigation of under-prescribing. The areal average must be arrived at by taking into consideration those above the average and those below, and it would seem only fair to require an explanation from practitioners whose average is much below that of the area. Patients are entitled to proper and sufficient medicines, and if a practitioner does not give sufficient medicines he is breaking regulations as much as the over-prescriber. And these patients are not very likely to make complaint. The public are rather fond of cranks, and are apt to think that the doctor who says, "I don't believe in medicines" is cleverer than his brother practitioner. It does not occur to them that he may not know how to use drugs properly.

Appeal to a court of law against surcharge commends itself to newspaper correspondents in Glasgow. But this is a double-edged weapon; for if a disgruntled doctor is to be allowed to appeal against the decision of Ministry, panel, or insurance committees in a highly technical matter on which he has been tried by his own colleagues, these committees too must be allowed to appeal to the courts in cases in which the Minister decides against them. The important matter is that justice should be done. From a somewhat prolonged survey we have yet to discover an official of the Ministry, or a court of referees set up by it, failing to interpret the regulations in an impartial manner.

Mileage in the North Riding

At a meeting of the insurance committee for the North Riding of Yorkshire it was reported that the inability to find a successor to the medical practice at Appleton Wiske had resulted in the allocation of patients to doctors in the surrounding area which would mean an additional call of £210 on the mileage fund. This, it was suggested, might involve hardship on insured persons over a wide area; some patients would require to make journeys on a restricted bus service to Northallerton to consult their medical man, and to wait several hours before they could make the return journey. A substantial subsidy to a doctor to live at Appleton Wiske would be more economical than a charge on mileage fund, but there seems to be no suitable house in the place, and the practice is so poor that even with a subsidy of £200 a medical man could not live on the spot.

Attendance on Poor Old People

Last month an elderly woman died in East Ham from perforated gastric ulcer without having been seen by the doctor. At the inquest the district medical officer stated in evidence that this was an old public assistance patient with many troubles, and after seeing her on Nov. 16th he told the relatives to inform him if she became worse, the next thing he heard about one month later was she was dead. "I have to attend all the old cases of East Ham," he is reported as saying, "and I cannot see all these people as often as I should like," adding: "I have been here five years, and this is the first time it has happened—owing mainly to good luck." Why, it may be asked, cannot these old people have a choice of panel doctors, responsible to some committee comparable to those of the National Health Insurance system? Were the public assistance committee to join up with the public medical services, as they exist in many parts of the country, this over-pressure of work on doctors would be avoided and these old people would receive the standard of medical practice to which they are entitled.

Economy Gone Wrong

The London pharmaceutical service subcommittee recently found a chemist guilty of a breach of the terms of his service for failing to supply medicaments ordered. The complainant alleged delay. The facts were that a doctor ordered sod. morrh. 10 per cent., one 2 c.cm. ampoule for intravenous injection, the insured person being told that he could have this if he would call the following evening. Inquiries by the chemist elicited that the manufacturers could not supply a single ampoule, and that the smallest box contained five ampoules. An approach was then made to the practitioner, who was requested to order five ampoules, but refused. Three days later the medicament had not been supplied, notwithstanding that the insured person had called several times. The practitioner then gave him an injection, using his own stock for the purpose. The chemist admitted that he did not dispense the prescription, and relied on the defence that the smallest quantity of ampoules he could obtain from his wholesale house was five, whereas the prescription ordered only one and the prescriber refused to amend the order. He did not want to have left on his hands four ampoules for which he might not be able to find a customer. This point is, however, covered by Section 14 of the Drug Traffic, which forms part of the terms of service:—

> Where a proprietary preparation is required by the prescription to be supplied without dilution or admixture, and is available only in packages of definite sizes, a chemist may, if the preparation does not come within the scope of the Dangerous Drugs Regulations, supply the size approximating most closely to the quantity of preparation prescribed where this quantity does not correspond exactly to the quantity contained in a package. Payment for quantities of proprietary preparations other than those prescribed will be made only where the chemist forwards to the pricing office, with the appropriate prescription form, particulars of the quantities supplied.

The chemist should have supplied five ampoules and marked the prescription accordingly. But it seems rather hard on a chemist who went to quite a lot of trouble to supply what was asked for, and hesitated only from a desire for economy, should be found guilty of a breach of the terms of service.

SUN, AIR, AND SEA-BATHING IN HEALTH AND DISEASE.—Sir Henry Gauvain, medical superintendent of Lord Mayor Treloar Cripples' Hospital and College, Alton, Hants, will lecture on Sun, Air, and Sea-bathing in Health and Disease, in the Great Hall of the British Medical Association, Tavistock-square, W.C., on Tuesday, Feb. 21st, at 8 P.M. The lecture is the fifth Sir Charles Hastings Lecture, inaugurated by the British Medical Association and designed to afford public information from high authorities on matters of general health interest. The chair will be taken by the president of the Association, Lord Dawson of Penn, and after the lecture relevant questions in writing are invited. Admission will be free by tickets obtainable on application to the financial secretary, B.M.A. House, Tavistock-square, London, W.C.1.

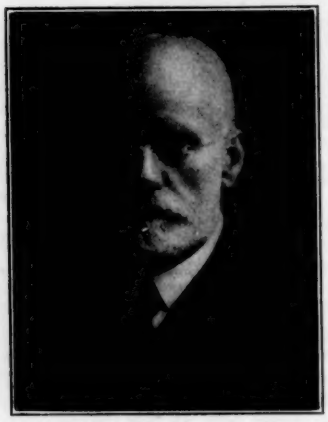
OBITUARY

ALEXANDER MITCHELL STALKER, M.D., LL.D. St. And.

EMERITUS PROFESSOR OF MEDICINE IN ST. ANDREWS UNIVERSITY

WE have already recorded the death of Prof. Stalker which occurred on Dec. 24th at the age of 79.

Alexander Mitchell Stalker was the son of Donald Stalker, of Leven, Fife, and was born at Leven in 1853. His early education was received at Leven, but most of his school days were spent at the Royal High School, in Edinburgh, before entering the University as a student. Here he had among his contemporaries the two Seths—Andrew, who became professor of logic and metaphysics, and Young, who became professor of moral philosophy in the University—and Lord Haldane, but Stalker held his own with them. He graduated M.A. with first-class honours in mental philosophy, and throughout his life he retained his interest in philosophy and literature generally. As a medical student he obtained the M.B., C.M., in 1881, and became house physician to Prof. Grainger Stewart at the Royal Infirmary. A period of post-graduate study at Leipzig followed and then a short spell as resident medical officer at Murray House, Perth. Having proceeded to the M.D. degree he then began practice in Dundee, and promptly secured various junior appointments, and in 1888 became physician to the Dundee Royal Infirmary. He now prepared the original draft for a clinical school of medicine in Dundee in association with the adjacent university of St. Andrews, and in 1898 was appointed the first occupant of the chair of medicine, a post which he held for 25 years, during which time he saw the young school steadily develop in strength. During his long period as professor he was entirely responsible for the lectures on the institutes of medicine, and shared with the late Dr. Mackie Whyte the clinical instruction of the students, the two men forming an interesting contrast, for Whyte was precise and methodical, while Stalker, more philosophical in his teaching, appeared interested rather in the individuality of the sick patient than in the scientific study of disease. He was, indeed, of that older scholarly type of physician, preserving a catholic interest in humanity.



PROF. STALKER

[*Photograph by Partoon.*

In addition to his duties as a professor and as an important member of the hospital staff, Stalker found time to hold other appointments, and was for long medical officer to H.M. Prison, Dundee, where he used his opportunity to study with interest the criminal mentality of the inmates. He retired from the staff of the Dundee Royal Infirmary in 1923, becoming at the same time Emeritus professor of medicine at St. Andrews, and since that time enjoyed fair health till recently; but just before completing his eightieth year he succumbed rapidly to an acute attack of bronchitis. His wife had predeceased him by several years and his eldest son was killed in the war; he is survived by a family of three daughters and three sons, one of whom is at the present time assistant physician to Dundee Royal Infirmary.

A colleague of Prof. Stalker writes: "Prof. Stalker has left behind him the memory of a lovable man, unworldly and generous to a point almost beyond his means. He had a gift for friendship. Of a retiring nature, he was at his best in a small company, where his slow judicious speech with his witty sallies made him ever welcome."

ROBERT DONALDSON, M.D., F.R.C.S. Edin.

PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF LONDON

WE regret to announce the death of Prof. Donaldson, pathologist to Guy's Hospital, which occurred on Jan. 3rd in the fifty-sixth year of his age, from pneumonia, after a very brief illness.

Robert Donaldson, the son of Mr. James Donaldson, of Corstorphine, was born in 1878 and educated at the Royal High School, Edinburgh, and the University of Edinburgh, graduating in Arts in 1898 and as M.B., Ch.B., in 1904. Having decided to follow a bent towards pathology, he did post-graduate work at Marburg and became demonstrator of pathology first at the University of Sheffield, and later at Bristol, where he was assistant pathologist to the Royal Infirmary. He then held a similar post at the Royal Berkshire Hospital, Reading, was curator of the pathological museum, was in charge of the war hospitals laboratory in Reading, and was appointed consultant bacteriologist to the Berkshire County Council. His pathological work at Reading during the war gained him well-earned credit. Much of it was published in our columns, where he wrote on the ætiological factors in cerebro-spinal fever, as indicated by a severe outbreak in Reading in 1915, and on a series of cases of paratyphoid, the infection probably of military origin. He made careful observations, jointly with Dr. J. L. Joyce, then special surgeon to the Reading War Hospital, on wound treatment, which were embodied in a report to the Medical Research Council, and he published also many bacteriological notes founded on his work at the Reading War Hospital. In 1918 he came to London as lecturer in pathology and forensic medicine at St. George's Hospital, where he was curator of the museum. Here he did excellent work for the school for ten years. He was an energetic and careful organiser, equally at home as teacher and as collaborator with the staff in questions of morbid anatomy and bacteriology, covering the large field indicated in his serial contributions and later in his book on morbid histology. He suffered considerably during this period of his life from recurrent attacks of influenza, on the bacteriology of which he wrote at some length in F. G. Crookshank's manual. In 1928 he was appointed Sir William Dunn professor of pathology in the University of London, holding the chair at Guy's Hospital, where he was director of the pathological laboratory. On his appointment he threw

himself whole-heartedly into the task of reorganising the pathology department from the point of view of teaching. Firmly convinced that a knowledge of the principles of pathology was essential for a proper appreciation and understanding of clinical medicine and surgery, he did all in his power to ensure that his students had ample opportunities for acquiring that knowledge. He was conscientious and thorough in all his teaching, and his lectures were models of systematic method. He established and organised a small teaching museum, in which the specimens are arranged in a manner which enables the student to study not only the diseases of individual organs but also the effects of the commoner diseases on the various organs in the body. The catalogue, which contains a detailed description of each specimen, was his own work, and students at Guy's have taken full advantage of these facilities, of whose teaching value there can be no doubt. He was an occasional contributor to the Guy's Hospital Reports, in which he published an important paper on Hæmochromatosis in 1929, and he was also responsible for a series of experimental investigations in connexion with the work on puerperal sepsis by the late Dr. Remington Hobbs.

Donaldson was a many-sided man, having, in addition to his medical qualifications, diplomas both in tropical medicine and public health, while he was a sound classic and a good French and German scholar. His handbook on practical histology, a second edition of which appeared last year, contained much valuable teaching. In the first edition the work only attempted to be a guide to morbid histology, but in the later issue the scope of the work was extended, and concise accounts of the pathology and morbid anatomy of different lesions were included with descriptions of their histology. The addition of short sections on parasitology and histological technique made of the work a text-book in which the whole subject is treated comprehensively; the essential points were reproduced in a clear manner, accompanied by excellent pictures.

Donaldson's classical training and interests in modern literature made him an attractive conversationalist and a competent critic sometimes inconveniently outspoken. He was a real Scot; he loved the Highlands and Islands, and during the last year had been studying Gaelic in order to get in touch with the people. He was a man of deep religious convictions, whose family life was ideal. He married Annie, daughter of the late John Owen of Blaenau-Festiniog, and is survived by her and their two daughters.

SIR CHARLES CLUBBE, K.B.E., M.R.C.S. Eng.

CONSULTING SURGEON, ROYAL ALEXANDRA HOSPITAL FOR CHILDREN, SYDNEY

WITH the death of Sir Charles Clubbe, at the age of 78 years, Australia loses one who has been an outstanding personality in the Commonwealth for many years.

Charles Percy Barlee Clubbe was born at Hughenden Vicarage, Buckinghamshire, in 1854, the son of the Rev. Charles Clubbe. He was educated at Uppingham, whence he proceeded to study medicine at St. Bartholomew's Hospital, and obtained the diplomas of M.R.C.S. Eng. in 1876 and L.R.C.P. Lond. in 1877. After holding a house surgeoncy in Kidderminster, he went out to practice in Natal, and was civil surgeon attached to the Army Medical Service during the Zulu War in 1879. At the close of that war he returned to England and was appointed chief resident medical officer to the Manchester Children's Hospital, thus beginning an association with the diseases of children which lasted until his death. In 1883, for reasons of health, Clubbe went out to Australia, and settling in Sydney he was appointed promptly to the Children's Hospital, now known as the Royal Alexandra Hospital for Children. Largely as the result of his personal efforts and work the hospital is held in high esteem by all, and his own success in the early diagnosis and prompt treatment of intussusception was remarkable. He was a member of the staff for over thirty years, and on his retirement retained his position as president of the hospital and chairman of the medical board, while in recognition of his services he was presented with his portrait which is now in the possession of the hospital.

Sir Charles was responsible for founding a department for the diagnosis of diphtheria in Sydney, and later was active in raising funds for the provision of serum for the treatment of infantile paralysis. He was one of the founders of the Royal Australasian College of Surgeons, hon. consulting surgeon to the Deaf, Dumb, and Blind Institute, and at different times was a member of the staffs of the Royal Prince Alfred Hospital, the Coast Hospital, and the Greycliffe Home for Babies. He was for many years chairman of the executive of the District Nursing Association. He was knighted in 1927. His abiding interest in life was the study of the diseases and treatment of children; and the Royal Alexandra Hospital for Children, as it is at present, is a monument to him.

CECIL FOWLER BEADLES, F.R.C.S. Eng.

PATHOLOGICAL CURATOR OF THE COLLEGE

Cecil Beadles, who died on Jan. 3rd at his home at Egham Hill, aged 66 years, came of a family of general practitioners, some of whom practised in Forest Hill and others at New Southgate, when both were villages which had not yet become engulfed by the suburbs of London. He was educated at University College, where he won the gold medal in histology in 1885 and became known to S. G. Shattock, then curator of the College museum. He qualified M.R.C.S. and L.R.C.P. in 1890, and must soon have recognised his unfitness to deal with private patients, for his shyness made him brusque in manner and address. He was house surgeon at the Cancer Hospital for a short time, and from 1892 until 1906 was assistant medical officer at the London County Asylum, Colney Hatch, at a time when it became widely known owing to a disastrous fire causing the death of several inmates. His work here on the degenerative lesions of the arterial system in the insane led to the award of a prize by the Medico-Psychological Association.

MR. BEADLES

In 1906 Beadles resigned his post at Colney Hatch to become an unofficial worker at the Royal College of Surgeons, and two years later he was

appointed Hunterian professor of surgery and pathology, his subject being the variation in distribution of the cerebral arteries. In October, 1909, he was chosen to assist Shattock in selecting, arranging, and cataloguing specimens in the museum to illustrate the main principles of general pathology. His energy, foresight, orderliness, and excellent technique, aided by Shattock's philosophic outlook, completed "for the first time" (to use the words of Sir Arthur Keith) "a work written not in words but in illustrative specimens—a complete and systematic treatise on general pathology." From 1916 onwards Beadles was engaged in arranging and describing the Army medical war collection of pathological and other specimens, work which occupied him, with the help of Mr. T. W. P. Lawrence, until 1921, when the preparations were entrusted by the War Office to the keeping of the College, and are now exhibited as "The Army Medical Collection." These 3000 specimens illustrate from every aspect the injuries and diseases incidental to warfare. The College recognised his services in 1927, when he was elected F.R.C.S. without examination. He was appointed pathological curator when Shattock died in 1925, and from then onwards was engaged in the never-ending task of making a new descriptive catalogue of the pathological specimens in the museum, together with the examination and description of those which are being constantly added.

Sir D'Arcy Power writes: "It may fairly be said of Beadles that he was in the true line of succession of those who have built up the pathological side of the Hunterian museum — Clift, Paget, Doran, Goodhart, Targett, and Shattock. More he would not have wished.

"Somewhat above middle height, clean shaven, with prematurely white hair, and of ascetic appearance, Cecil Beadles was unmarried, and lived for his garden and the Hunterian museum at the Royal College of Surgeons. He was so retiring that he was rarely seen even by his colleagues unless they went to look for him in the workrooms or the museum of the College."

CORRESPONDENCE

THE VALUE OF MASSIVE RADIATION

To the Editor of THE LANCET

SIR,—An agreement with the Radium Commission prohibits members of the Westminster Hospital staff from publishing anything about their work with the four-gramme "bomb," but as my experience of teletherapy antedates, and is not confined to, the use of that unit, I feel at liberty to point out certain implications of the final report of the Conference on Radium (THE LANCET, Jan. 7th, p. 44) that may not be entirely obvious.

The two centres selected by Mr. Souttar as examples of what can be done with teletherapy are both of them free from financial anxiety and entirely independent. They are not subject to any of the restrictions imposed on us at Westminster. Both are free to choose exactly what type of case they will study and treat; both are free to reject any case they consider unsuitable; both of them are free to use the available radium in any form and aggregates they like; neither of them is under an obligation, I believe, to present any report until they so desire; in both centres it is thoroughly understood that, except in restricted fields, radium teletherapy has not yet reached a stage in which it is suited for the routine treatment of a hospital's patients.

No one will be better pleased than I to see a big unit re-established in this country, provided it is under the supreme control of a man of great clinical experience, senior enough to secure harmonious working of his team, and able to devote his whole time to irradiation work. Provided also that there is ample financial support, entire freedom of choice as to the use of the radium—whether for physical and biological research, or for clinical work in any selected field—and provided there is no embargo upon the simultaneous employment of other methods if desired.

I do not think the "bomb" establishment ought to be attached to *any* single hospital. If it be attached to one hospital, workers in other hospitals do not find their way into the wards and laboratories as easily as they should. There is a traditional diffidence as to intrusion. That, certainly, has been our experience. Notwithstanding cordial invitation, and entire liberty of access to every detail of our work, scarcely any London radium workers ever set foot inside the doors of our annexe. I believe that I am right in saying that no member of the Conference on Radium or its technical committee had ever paid a visit of investigation (though some visited individual patients), until after the radium was finally withdrawn from the apparatus. Of specialists from the Empire and from other countries, there were several who thought it worth while to learn what we had to show, and we have spent many days in demonstration and discussion with them.

It is highly desirable that every hospital should coöperate, and that all the brains of the profession—including those of the physicists—should be laid under contribution; but that will not be the case unless the institution selected or built for the proposed five-gramme unit is actually independent of any of the general hospitals, even the post-graduate.

I am, Sir, yours faithfully,

E. ROCK CARLING.

London, W., Jan. 10th, 1933.

FACIAL PALSY AND INFECTION WITH ZOSTER VIRUS

To the Editor of THE LANCET

SIR,—The interesting communication by Dr. Aitken and Dr. Brain in your last issue has suggested to me the publication of the following notes.

A man, aged 39, a cook, was admitted under my care on June 27th, 1932. On June 10th he noticed "pricking" sensations over the left side of the face and temple, followed the same day by reddening of the skin of the lower lip, chin, cheek, and temporal region of the same side, rapidly replaced by patches 1–2 cm. in diameter of closely set papules which two days later had become vesicular. This eruption was associated with some swelling and tenderness of the lingual, submaxillary, and auricular lymph glands. By the end of a week the vesicles had burst and were covered with reddish crusts, the paræsthesia which had disappeared now recurred, and the affected areas of skin were tender to touch; there was also some pain in the tongue and in the ear of the same side, and a minor degree of deafness. On June 22nd, that is to say on the twelfth day after the appearance of the herpes, on wakening in the morning the left side of the face was found to be paralysed.

On admission five days later there were found numerous crusted lesions on the areas above described, with complete loss of sensibility over the same distribution. Examination of the left auditory meatus revealed a few broken vesicles on the walls but the tympanum appeared normal. The

glands above detailed were still enlarged and tender. Complete left facial paralysis was present. No signs of any other affection. Wassermann reaction (blood) negative.

Since some virus infections are beneficially affected by protein shock therapy, it was decided to try similar treatment in this case. The results appear to warrant a further trial of the method. On July 2nd T.A.B. vaccine, 50 millions, was given intravenously, with a reaction temperature of 101·5° F. and pulse 96 per minute. The reaction was over in 36 hours. Three days later, on the 5th, a 150 million dose was given. In six hours the temperature reached 102·6° F. and the pulse 80 per minute; 18 hours later the temperature was normal and it was noted that the facial paralysis was less marked. A third injection of vaccine, 200 millions, was given on July 11th; the temperature rose to 101·8° F., the pulse 80 per minute in six hours, but had regained normal in 24 hours. Within four days from this date the eruption had completely disappeared, normal sensation had returned, and the facial paralysis completely cleared up.—I am, Sir, yours faithfully,

London, W., Jan. 10th, 1933. HUGH S. STANNUS.

UNSOUGHT PUBLICITY

To the Editor of THE LANCET

SIR,—I hope it is not too late to offer Sir Harold Gillies congratulations on the action he has taken with regard to certain publicity recently given him in the press. No doubt those of your readers who have suffered from misrepresentation or unsought-for publicity will heartily approve of the views expressed in the closing paragraphs of his admirable letter. I can sympathise with his resentment, for, like him, I have been a victim of gross misrepresentation in the lay press. My case was not exactly parallel with his, but my reasons for annoyance were equally real, and a sense of it has lasted.

One night in November, 1931, I was awakened by the telephone about 2 A.M. The person at the other end said he was speaking on behalf of ——, mentioning the name of a well-known London newspaper. He wanted to know if the report appearing in that morning's issue of their own paper was correct—a report to the effect that I had been called in consultation and was going to perform an abdominal operation at 8 A.M. upon a distinguished person, at the time in the public eye. I thought my interrogator was some kind friend attempting a practical joke, so I rang off. I was quickly disillusioned. The telephone rang again. This time it was a representative of the Central News, who assured me that there was a report in a paper which he mentioned, and he wished to know if it were true. Thereafter the telephone seemed to ring incessantly and reporters for various papers sought information so persistently that I was forced to have my telephone disconnected. In the morning I found in the centre of the front page of the paper a report—more than half a column of it—with large black headlines, to the effect that "a hurried consultation had been held. . . . So-and-So had been rushed to —— Hospital, and an operation was to be performed at 8 A.M that morning." Then followed a gratuitous eulogy of myself. Now I did not know the celebrity nor his relatives, nor anybody even remotely connected with him. Neither did I know any of the doctors in attendance, nor had I had communication or consultation with them. There was not a vestige of truth in the whole statement, and no member of the staff of the paper had even telephoned *before publication* to know if the statement had any substance in fact. I consulted the secretary of the Medical Defence Union and Mr. Hempson, the solicitor to the Union, but was informed by both that I had no redress; that there was no libel. With the coöperation of Mr. Hempson I wrote to the editor asking that he should trace this statement to its source, and give me an explanation of how it came to be published without the least attempt at verification. All that I received in reply was: "I am in receipt of your letter of yesterday's date, and am giving the matter my immediate attention." Since then I have heard nothing, nor been vouchsafed an apology.

There should be a limit to the activities of reporters in respect of medical men, and they should verify their statements or reports with regard to medical men before publication. I have no doubt nothing is further from their minds than to harm the person to whom they give unsought publicity. This, however, is precisely the effect that may be produced. Publicity is from time to time inevitable for leaders of the profession, but when younger and not so well-established men are thrown into its glare, and for no legitimate reason, the occurrence does them harm with colleagues, and may alienate friendships and support, and definitely affect their future.

Surely, Sir, something can be done along the lines suggested by Sir Harold Gillies. If a meeting could be arranged between responsible leaders of the press and the medical profession, and the whole matter of press publications affecting medical men could be thoroughly discussed in a spirit of coöperation, would it not be possible to lay down, quoting Sir Harold Gillies, "ethical rules . . . departure from which would be condemned in no uncertain way."

I am, Sir, yours faithfully,

MICHAEL SMYTH.

Wimpole-street, W., Jan. 3rd, 1933.

CONGENITAL MALARIA

To the Editor of THE LANCET

SIR,—The statement in your issue of Dec. 31st last (p. 1463) that "leading authorities on malaria are of opinion that malaria is never congenital" is hardly correct; some leading authorities may be of this opinion, but it is not at all universal. If, in malarial districts, the temperatures of all babies are taken just after birth and blood slides obtained from those with a raised temperature, one will at times find parasites, as I proved myself in Mombasa in 1924 and 1925. In Castellani and Chalmers' "Manual of Tropical Medicine" (1919), on page 1134 you will find this statement:

"It is now known that the merozoites can, although very rarely, penetrate the placenta and infect the fœtus, giving rise to congenital malaria."

Many workers in the tropics admit the entity of congenital malaria, and I, for one, do not look on Dr. Weyl's case as a very exceptional one. I feel sure that if blood slides were taken of all children at birth in any big hospital in a malarious district many cases would be discovered.

I am, Sir, yours faithfully,

N. P. JEWELL,

Lately in charge European Hospital, Nairobi.

Pinner, Jan. 6th, 1933.

SODIUM-SULPHOMETHYL-STIBANILATE

To the Editor of THE LANCET

SIR,—In a brief report, published in THE LANCET of June 4th, 1932 (p. 1235), of a paper read by me before the medical section of the Asiatic Society of Bengal, it was stated that the compound sodium-sulphomethyl-stibanilate was obtainable in the market under the names of Thio-sarmine, Sulfarsenol, and Kharsulfan. This is incorrect. This compound is an antimonial containing sodium-methylene-sulphonic acid radicle, just as thio-sarmine or sulfarsenol is an arsenical containing the same radicle.

I am, Sir, yours faithfully,

UPENDRANATH BRAHMACHARI,

Medical Secretary, Asiatic Society of Bengal.

Calcutta, Dec. 22nd, 1932.

"EPISTAXIS WITHOUT TELANGIECTASIA"

To the Editor of THE LANCET

SIR,—Since Fordyce (1784), Sutton (1864), Babington (1865), Legg (1876), Chiari (1887)—not to mention Frank (1840), Rendu (1896), Osler (1901, 1907, 1911), Kennan (1902), F. Parkes Weber (1907), Goldstein (1921, 1930, 1931, 1932), and many others—reported their cases of heredofamilial bleeding (non-purpuric and non-hæmophilic), epistaxis with and without telangiectasia, a number of interesting papers on this subject have appeared. There are probably recorded to date about 110 or 120 families and about 700 persons suffering from Rendu-Osler-Weber's disease (heredofamilial epistaxis with or without familial hæmorrhagic telangiectasia) in the entire available medical literature of the world. In your issue of Dec. 17th Dr. Eric Wordley reports a family suffering from "epistaxis without telangiectasia." I believe if careful search were made, telangiectases would be found in some members of this family—in the nose, mouth, rectum, or under the finger-nails, on the lips, tongue, palate, conjunctivæ, or somewhere on the body.

I am, Sir, yours faithfully,

HYMAN I. GOLDSTEIN, M.D.

Camden, New Jersey, U.S.A., Dec. 27th, 1932.

DOSAGE OF INSULIN

To the Editor of THE LANCET

SIR,—As a diabetic of moderate severity (40–50 units insulin a day) and a medical man, I should like to emphasise to fellow sufferers, and those who treat them, the importance of not only standardising the diet, but of *stabilising* the dosage of insulin to that diet with each fresh batch of insulin employed. The urine should be tested three-hourly for three days after commencing a batch of insulin, as the alteration of *quantity* (if any) required does not make itself manifest in the urine at once. I, having stabilised my dosage for the batch, make an arrangement with the supplier to put on one side the whole of that batch for my special use.

I would like to quote from "Physiology and Biochemistry in Modern Medicine," by J. J. R. Macleod (6th ed., 1930, p. 919), "The Assay of Insulin." The definition of a unit of insulin as accepted by the Standardisation Committee of the League of Nations is given, and Prof. Macleod makes the following statements:

"A *latitude* of about *15 per cent. either way* is therefore allowed in the assay of the manufactured product. This fact should be borne in mind by physicians using insulin in the treatment of diabetes, and *in changing from one batch to another, patients should be carefully watched* for a *day or two* to see that the *previous dosage* is *maintained.*" (The italicising of the words quoted do not appear in the text.)

If I had not fortunately consulted this work I doubt if I should be alive now to write this letter. I believe the latitude allowed in the new British Pharmacopœia in the standardisation of insulin is reduced to 10 per cent., but even if this is so it would still be a very serious matter to a case of true diabetes, and probably would not apply to brands of French or other foreign manufacture.

I am, Sir, yours faithfully,

Jan. 2nd, 1933. "A DIABETIC DOCTOR."

*** Since other variables, such as absorption rate, are so great and food-table values merely approximate, our correspondent seems hardly justified in attributing his continuance in health to the discovery of a 10 or 15 per cent. discrepancy in the potency of his insulin, and it is unlikely that a difference of this order could be appreciated by a patient. The assay of insulin is one of the most accurate of its kind, and to obtain a reproducibility of 10 per cent. in a biological method indicates a triumph over technical difficulties. British insulin is, we believe, standardised to as high a degree of accuracy as any insulin in the world.—ED. L.

EPSOM COLLEGE

To the Editor of THE LANCET

SIR,—Having read Dr. Raymond Crawfurd's appeal, I have sent him one guinea, in the hope that 499 other grateful patients will do the same—as they should.

I am, Sir, yours faithfully,

Jan. 7th, 1933. A GRATEFUL PATIENT.

MEDICAL NEWS

University of London

At recent examinations the following were successful:—

M.D.

Branch I. (*Medicine*).—J. V. Armstrong and Alison M. Clark, St. Mary's Hosp.; F. S. Cliff, Univ. Coll. Hosp.; *E. T. Conybeare, Guy's Hosp.; Idris Davies, Cardiff and Westminster Hosp.; W. P. Greenwood, St. Bart.'s Hosp.; G. B. M. Heggs, St. Mary's Hosp.; H. B. Hodson, St. Thomas's Hosp.; H. W. Howell, London Hosp.; Alfred Mitchell, King's Coll. Hosp.; A. M. Nussbrecher, Middlesex Hosp.; Nellie H. Reynolds, Cambridge and King's Coll. Hosp.; Ursula Shelley, Roy. Free Hosp.; F. H. Stevenson, Guy's Hosp.; H. C. Trowell, St. Thomas's Hosp.; and Frances J. Vinter, Roy. Free Hosp.

Branch II. (*Pathology*).—C. L. Oakley, Univ. Coll. Hosp.; C. G. Paine, St. Mary's Hosp.; C. K. Simpson, Guy's Hosp.; and Namasivayam Sinnadurai, London and Guy's Hosps.

Branch IV. (*Midwifery and Diseases of Women*).—Mabel A. Baker, Roy. Free Hosp.; Kathleen M. D. Harding, Roy. Free and St. Mary's Hosps.; Eileen S. Morris, Univ. Coll. Hosp. *W. C. W. Nixon, St. Mary's Hosp.; E. M. Shippam, Roy. Free Hosp.; and H. J. D. Smythe, Univ. of Bristol and London Hosp.

Branch V. (*State Medicine*).—A. R. Thompson, London Hosp. and London School of Hygiene.

* University medal.

Two lectures on Iodine and the Thyroid Gland will be given in the governors' hall, St. Thomas's Hospital, S.E., by Dr. Edward Mellanby, professor of pharmacology in the University of Sheffield, at 5 P.M. on Thursday, Jan. 26th, and Friday, Jan. 27th. The subject of the first lecture, at which Prof. John Mellanby will take the chair, is Goitres—Experimental and Clinical, while on Friday the lecturer will speak on Hypo- and Hyper-thyroidism. No ticket is required.

The Out-patient Problem

In a message to King Edward's Hospital Fund for London the Prince of Wales, the president, refers to the report on out-patient departments just issued (THE LANCET, Jan. 7th, pp. 42 and 54). It will, he says, enable the public to realise how difficult a problem it is, and how many experiments the hospitals themselves have been making to reduce the hours of waiting. "But the report," he says, "is more than a mere academic discussion of the question. It is meant to lead to action. Its actual recommendations are carefully worded so as to respect the freedom of the individual hospitals, which is an essential feature of the voluntary system. But the committee present a strong prima facie case for believing that part of the waiting-time can be reduced, and they want the hospitals to study that case in detail with a view to taking action wherever it is practicable." Accordingly the Prince has appointed a small committee which shall have power not only to consider, in consultation with the hospitals, what steps can be taken, but, in coöperation with the management and distribution committees, to take the necessary steps.

This committee will be called the out-patients' arrangements committee, and will consist of Sir John Rose Bradford, consulting physician to University College Hospital (chairman); Dame Rachel Crowdy, R.R.C.; Sir Ernest Morris, late house governor of the London Hospital; Sir Isidore Salmon, M.P., chairman of J. Lyons and Co.; Mr. Eric Pearce Gould, surgeon to Middlesex Hospital; Lieut.-Colonel A. P. Irwin, clerk to the governors of St. Thomas's Hospital; and Mr. R. H. P. Orde, hon. secretary of the British Hospitals Association.

Post-graduate Course on Tuberculosis

The Joint Tuberculosis Council have arranged for a post-graduate course to be given at the Brompton Hospital, London, from Feb. 20th–25th. Particulars may be had from Dr. William Brand, 8, Highway-court, Beaconsfield, Bucks.

Royal London Ophthalmic Hospital

The annual dinner of past and present students of Moorfields Hospital will be held at the Langham Hotel, Portland-place, London, W., on Thursday, Feb. 9th, at 7 for 7.30 P.M. Sir Arnold Lawson will take the chair, and tickets may be had from Mr. Rupert Scott, 70, Harley-street, W. 1.

British Institute of Philosophy

Dr. C. S. Myers will take the chair at a meeting to be held at University College, Gower-street, W.C., at 8.15 P.M. on Tuesday, Jan. 17th, when Prof. F. A. P. Aveling will speak on Some Contemporary Contributions of Psychology to Philosophy.

Royal Microscopical Society

A presidential address to this society will be given by Mr. Conrad Beck in the Hastings Hall of B.M.A. House, Tavistock-square, London, W.C., at 5.30 P.M., on Wednesday, Jan. 18th. His subject is Microscope Illumination with Transmitted Light.

Guild of Public Pharmacists

Mr. Wilfred Trotter, senior surgeon to University College Hospital, will address a meeting of this guild at the house of the Pharmaceutical Society, 17, Bloomsbury-square, London, W.C., at 7.30 P.M. on Wednesday, Jan. 18th. The title of his address will be De Minimis. Dr. C. H. Hampshire, secretary of the Pharmacopœia Commission, will take the chair.

German Balneological Society

The forty-eighth German balneological congress will take place in Baden-Baden from April 4th–8th under the presidency of Prof. Dietrich, of Berlin. The principal subjects for discussion will be the Importance of Diagnosis in Health Resort Practice and the Present Position of Climatotherapy. The meetings are open to all interested, and communications should reach the secretary, Dr. Max Hirsch, Derfflingerstr. 7, Berlin, W.35, not later than Feb. 1st, 1933.

Society of Medical Officers of Health

A meeting of this society will be held at 1, Upper Montague-street, London, W.C., at 5 P.M., on Friday, Jan. 20th. A discussion on What do we really mean by Mental Deficiency? will be opened by Dr. G. A. Auden, school medical officer for the city of Birmingham, and Dr. F. C. Shrubsall, senior medical officer of the London County Council.—The dental officers' group will meet at 8 P.M. on Friday, Jan. 27th, when Mr. D. E. Mason will read a paper on Dentistry and the Dental Officer in the Public Health Services.

Spring Medical Congress at Wiesbaden

The forty-fifth meeting of the Deutsche Gesellschaft für Innere Medizin is to be held at Wiesbaden from Tuesday, April 18th, to Friday, the 21st, under the presidency of Prof. L. Lichtwitz (Berlin). Tuesday will be devoted to a discussion on the significance of the heavy metals in physiology and pathological processes, with papers by Heubner (Berlin), Zangger (Zürich), Martini (Bonn), and Embden (Hamburg). On Thursday, three papers on the pathology of the erythrocytes and of hæmoglobin will be given by Hans Fischer (Munich), Kämmerer (Munich), and Seyderhelm (Frankfurt). The programme for Wednesday includes a summarising lecture on the problem of the adrenals. Any who wish to take part should give notice before Feb. 5th to Prof. Lichtwitz at Rudolf Virchow Krankenhaus, Berlin.

West End Hospital for Nervous Diseases

This hospital offers special facilities for the instruction of post-graduate students in neurological and psychological medicine. The out-patient department at 73, Welbeck-street, London, W., has an annual attendance of over 40,000 patients, and the practice of the hospital can be attended by payment of a small fee. Appointments are also available as hon. clinical assistants and hon. clinical psychologists, and there is a special clinic with training centre and a fully equipped child guidance unit associated with the out-patient department. The in-patient department in Regent's Park, containing 76 beds (with a special ward of 25 cots for children), affords opportunities for the study and investigation of a wide range of cases. Two courses of lecture demonstrations are arranged annually in conjunction with the Fellowship of Medicine, and the hospital is also associated with Bethlem Royal Hospital in the provision of courses for the diploma of psychological medicine.

History of Plague in England

On Friday, Jan. 20th, at 8.45 P.M., at the Princess Elizabeth of York Hospital for Children, Shadwell, E., Col. W. P. MacArthur will give a lantern lecture on Plague in England in Old Times. Visitors are invited.

Devonport Military Hospital

This hospital, built at the end of the eighteenth century, is shortly to be sold by auction by order of the War Office. When, some time ago, it ceased to be used for soldiers wounded in the war it was offered to the corporation of Plymouth on generous terms, but the cost of adapting the buildings to municipal purposes was found to be prohibitive.

Dufferin Hospital for Children, Belfast

An extension of this poor-law hospital, named the "Ava" wing, which has cost £31,500, was opened on Dec. 29th by the Marchioness of Dufferin and Ava. All the wards have purposely been made small for the confinement of infection to a small area. An anæsthetic room has been provided adjoining the theatre.

London School of Hygiene and Tropical Medicine

A course of lectures on some aspects and problems of medical and industrial psychology will be given at this school on Mondays and Wednesdays during the present term. The lecturers will be Prof. Millais Culpin, Mr. Eric Farmer, Prof. Major Greenwood, and Miss May Smith. The first lecture, a historical introduction, will be given by Prof. Greenwood on Jan. 16th at 2 P.M. The course is primarily intended for students taking the diploma in public health or the diploma in industrial psychology of the University of London, but other members of the medical profession or students of the university are invited to attend.

People's League of Health

On Monday next, Jan. 16th, the twelfth annual series of Sims Woodhead memorial lectures, consisting of 13 "constructive educational health lectures," will open at the headquarters of the National Union of Teachers, Hamilton House, Mabledon-place, London, W.C. They will be given on consecutive Mondays at 6 P.M., and the lecturers will be Dr. K. B. Aikman, Dr. J. S. Fairbairn, Dr. W. J. O'Donovan, Prof. D. F. Fraser-Harris, Prof. S. J. Cowell, Dr. J. Burnett Rae, Sir Leonard Hill, Dr. John Oliver, Dr. Philip Manson-Bahr, Dr. W. G. Willoughby, Dr. J. Sim Wallace, Sir Thomas Oliver, and Sir Frederick Hobday. Particulars may be had from the general secretary of the League at 12, Stratford-place, London, W. 1.

Hospital Libraries

A meeting under the auspices of the London and Home Counties Branch of the Library Association will be held at the Middlesex Hospital nurses' home, Foley-street, W. 1, on Jan. 25th, at 3 P.M. Miss Marian Frost will preside, and short papers will be read by Mrs. R. Beddington and Mrs. Richmond, honorary librarians to the Middlesex and Guy's Hospitals, Dr. W. J. T. Kimber, Mr. C. E. A. Bedwell, house governor, King's College Hospital, and Mr. G. R. Bolton, borough librarian, Watford. An exhibition will be held of methods and stationery, including book labels, employed by the various hospital libraries. Any exhibit that is likely to prove of interest should be sent to Mr. Bolton, Public Library, Watford, before Jan. 21st.

Edinburgh Royal Infirmary

The report for the year ended Sept. 30th last states that it has been necessary to draw upon the invested funds to the extent of £18,726, after utilising all legacies not earmarked for endowment. The deficiency has been met by other legacies and special donations amounting to £19,000, but the managers feel so much anxiety that a committee has been appointed to consider the whole financial position. Almost every item of ordinary income shows a reduction; a conspicuous exception is an increase of over £800 in receipts under the Road Traffic Act. Legacies fell from £75,000 to £56,000. The total of the year's ordinary expenditure was £157,000, a small increase. In-patients numbered 19,145; the daily average under treatment was 980, a fractional increase; at 17·45 there was also a fractional increase in the number of days' stay. Despite all efforts to reduce it the waiting list showed an average during the year of 3057. Out-patients exceeded 66,000, a substantial increment. The cost per occupied bed was £160 5*s.* 5*d.* and the average cost per day per patient 8*s.* 9*d.* A system of budgeting has been introduced, the expenditure of each department being restricted to a given figure "so far as it is possible to do so and maintain efficiency."

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Jan. 17th.—5.30 P.M., GENERAL MEETING OF FELLOWS. 8.30 P.M., PATHOLOGY. Meeting at the Imperial Cancer Research Fund Laboratory, 8, Queen-square, W.C. Demonstrations. L. Savatard (Manchester): Specimens illustrating Intra-epithelial Spread of Carcinoma. J. A. Murray: Spontaneous ? Cure of Cancer. Melanotic Sarcoma of Choroid. Destructive Contribution to the Lymph-stasis hypothesis. W. Cramer and H. G. Crabtree: Effect of Inhibitors of Metabolism on Transplantability of Tumours. L. Foulds: Thymus Metastases of Filtrable Fowl Sarcomata. F. R. Selbie: Growth of Jensen Rat Sarcoma in Susceptible Rats. A. F. Watson: Tar Carcinoma in Rats. Apparatus for the Preparation of Carcinogenic Tars under Standard Conditions.

THURSDAY.—5 P.M., DERMATOLOGY. (Cases at 4 P.M.) Cases. Dr. G. Bamber: 1. Pityriasis Rubra Pilaris. 2. Arsenical Pigmentation and Hyperkeratosis. Other cases will be shown. 8.30 P.M., NEUROLOGY and PSYCHIATRY. Special discussion on the Mental and Physical Symptoms of the Presenile Dementias. Openers: Dr. Macdonald Critchley and Dr. George Riddoch: Neurology. Dr. R. D. Gillespie and Dr. T. R. Hill: Psychiatry.

FRIDAY.—5.30 P.M., PHYSICAL MEDICINE. Discussion: Value of Physical Methods in the Treatment of Heart Disease. Openers: Dr. F. G. Thomson, Dr. B. T. Parsons-Smith, Dr. T. F. Cotton, and Dr. Geoffrey Holmes. 8.30 P.M., RADIOLOGY; OBSTETRICS and GYNÆCOLOGY. Special discussion on Radiotherapy in the Treatment of Non-malignant Gynæcological Conditions. Openers: Dr. N. S. Finzi (Radiology); and Mr. Malcolm Donaldson (with Dr. R. Moore Patterson) (Obstetrics and Gynæcology), followed by Dr. F. Hernaman-Johnson and Mr. Norman White.

HUNTERIAN SOCIETY.

MONDAY, Jan. 16th.—9 P.M. (at Cutlers' Hall, Warwick-lane, E.C.), Dr. Einar Thomsen (Copenhagen): Experimental and Clinical Studies of Gastric Juice (Hunterian Lecture).

CHELSEA CLINICAL SOCIETY.

TUESDAY, Jan. 17th.—(At the Hotel Rembrandt, Thurloe-place, S.W.), preceded by a dinner at 7.30 P.M., Discussion to be opened by Dr. H. T. P. Young on Character Defects in Young Delinquents.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, Manson House, Portland-place, W.

THURSDAY, Jan. 19th.—8.15 P.M., Dr. F. M. Burnet: Recent Work on the Nature of Bacteriophages; and Colonel F. P. Mackie, I.M.S. (ret.): The Technique of Bacteriophage Investigation as Used in India for Cholera and Dysentery.

ROYAL INSTITUTION, 21, Albemarle-street, W.

THURSDAY, Jan. 19th.—5.15 P.M., Prof. J. B. S. Haldane: Recent Advances in Genetics.

FRIDAY.—9 P.M., Sir William Bragg: The Crystals of the Living Body.

TUBERCULOSIS ASSOCIATION.

FRIDAY, Jan. 20th.—5.15 P.M. (at the London School of Hygiene, Keppel-street, W.C.), Prof. S. Lyle Cummins: Tuberculosis and the South African Native. 8.15 P.M., Dr. Philip Ellman: Pulmonary Asbestosis, Its Clinical Pathological, and Radiological Aspects, and Tuberculosis Risk.

SOCIETY OF MEDICAL OFFICERS OF HEALTH, Upper Montague-street, W.C.

FRIDAY, Jan. 20th.—5 P.M., Dr. G. A. Auden and Dr. F. C. Shrubsall: What do we mean by Mental Deficiency ?

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY, Royal Northern Hospital, N.

FRIDAY, Jan. 20th.—9 P.M., Mr. Kenneth Walker: Ourselves and Our Critics.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Jan. 16th, to SATURDAY, Jan. 21st.—NATIONAL HEART HOSPITAL, Westmoreland-street, W. Special Post-graduates Course in Cardiology. All day.

TUESDAY.—4 P.M., MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square. Lecture on Views on the Ætiology and Treatment of Peptic Ulcer, by Dr. Daniel T. Davies. (Free to Members and Associates.)

FRIDAY.—4.30 P.M. to 6 P.M., Demonstration of X ray Films of the Chest, Heart, and Intestinal Tract, by Dr. Peter Kerley. (Especially suitable to M.R.C.P. candidates.)

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith-road, W.

MONDAY, Jan. 16th.—10 A.M., Medical Wards, Skin Dept., Genito-urinary Operations. 2 P.M., Medical, Surgical, Eye, and Gynæcological Out-patients, Surgical Wards, Operations. 4.15 P.M., Lecture, Mr. Sinclair: Acute Appendicitis.

TUESDAY.—10 A.M., Medical Wards, Surgical Demonstration. 2 P.M., Medical, Surgical, Throat, Nose, and Ear Out-patients, Operations. 4.15 P.M., Lecture, Dr. H. Pritchard: Chronic Infections.

WEDNESDAY.—10 A.M., Medical Wards, Children's Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients.

THURSDAY.—10 A.M., Neurological Department, Fracture Demonstration. 2 P.M., Medical, Surgical, Eye, and Genito-urinary Out-patients. 4.15 P.M., Lecture, Mr. Tyrrell Gray: Surgical Disorders of the Viscera.

FRIDAY.—10 A.M., Skin Department. 12 noon, Lecture: Therapeutics. 2 P.M., Medical, Surgical, and Throat Out-patients. Operations.

SATURDAY.—10 A.M., Throat Operations, Medical and Surgical Wards. Surgical and Children's Out-patients. The lectures at 4.15 P.M. are open to all Medical Practitioners without fee.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark-hill, S.E.

THURSDAY, Jan. 19th.—9 P.M., Dr. H. A. Lucas: Hay Fever and Allied Conditions.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Jan. 17th.—3.15 P.M., Dr. E. G. B. Calvert: Modern Aids in Digestive Disorders.

ST. MARK'S HOSPITAL, City-road, E.C.

THURSDAY, Jan. 19th.—4 P.M., Mr. W. B. Gabriel: Appendicostomy. Indications, Technique, and Management.

LONDON JEWISH HOSPITAL, Stepney Green, E.

THURSDAY, Jan. 19th.—4 P.M., Dr. M. Schwartzman: X Ray Demonstration.

PRINCESS ELIZABETH OF YORK HOSPITAL, SHADWELL, E.

WEDNESDAY, Jan. 18th.—3.30 P.M., Prof. Leonard Findlay: Demonstration on Chorea.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Jan. 20th.—4 P.M., Mr. J. D. McLaggan: Giddiness.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Jan. 17th.—5 P.M., Dr. G. B. Dowling: Seborrhœa. Seborrhœic Dermatitis.

THURSDAY.—3 P.M., Dr. I. Muende: Pathology Demonstration.

GLASGOW POST-GRADUATE LECTURES.

WEDNESDAY, Jan. 18th.—4.15 P.M. (at the Royal Maternity and Women's Hospital), Dr. S. J. Cameron: Obstetrical Cases.

Appointments

DODDS, R. L., M.B., M.Ch., B.A.O., F.R.C.S. Eng., has been appointed Assistant Obstetric Surgeon, City of London Maternity Hospital.

Certifying Surgeons under the Factory and Workshop Acts.—DAVIES, H. G., L.R.C.P. Lond., M.R.C.S. (Llanidloes Montgomery); SQUIRES, F. V., M.B., Ch.B. Camb. (Wantage, Berkshire).

Births, Marriages, and Deaths

BIRTHS

BARNES.—On Jan. 8th, at Welbeck-street, W., the wife of F. G. L. Barnes, M.B., B.S. Lond., of Horton, Epsom, of a son.

BERTRAM.—On Jan. 7th, at a nursing home, the wife of Surg.-Lieut. D. Bertram, R.N., of "Gwynt," Wraxall, Bristol, of a son.

COLLYNS.—On Jan. 2nd, at Dulverton, the wife of Dr. P. C. Collyns, of a daughter.

GREEN.—On Jan. 8th, at Bromley Common, Kent, the wife of Dr. H. F. Green, of a son.

MILLER.—On Jan. 3rd, at Moniaive, St. Lawrence, the wife of Dr. A. K. Miller, of a son.

MARRIAGES

LOCKHART-MUMMERY—POLAK.—On New Year's Eve, 1932, quietly, in London, John Percy Lockhart-Mummery, F.R.C.S., of Harley-street, to Madame Georgette Polak, of Clive Court.

PRICE—STEVENS.—On Jan. 7th, at Holy Trinity Church, Brompton, Major Robert Bernard Price, R.A.M.C., to Daphne, only daughter of Mr. H. Stevens, of Herne Bay.

DEATHS

BEADLES.—On Jan. 3rd, at Gresham House, Egham Hill, Cecil Fowler Beadles, F.R.C.S., Pathological Curator, R.C.S. Eng., aged 66.

DONALDSON.—On Jan. 3rd, at Bridgford, Woodside-avenue, Muswell-hill, N., Prof. Robert Donaldson, M.A., M.D., F.R.C.S., aged 55.

HAMILTON.—On Jan. 7th, at Sutherland-avenue, Bexhill-on-Sea, George Hamilton, M.B., B.S.

MENZIES.—On Dec. 25th, at 25, Essendine-road, Maida Vale, W.9, James Menzies, M.B., B.S., M.R.C.S., L.R.C.P., eldest son of the late Dr. Duncan Menzies and Mrs. Menzies, aged 46 years.

PRICE.—On Jan. 4th, at Haydown, Amport, Hants, Hugh Bankes Price, J.P., M.R.C.S., L.R.C.P., aged 67.

TYRRELL.—On Jan. 1st, at Kensington-mansions, S.W., Francis Astley Cooper Tyrrell, M.B., B.Ch. Camb., F.R.C.S. Eng., Ophthalmic Surgeon, aged 62.

WADDELOW.—On Jan. 3rd, at Whittlesey, near Peterborough, after a short illness, John Joseph Waddelow, F.R.C.S., J.P., in his 65th year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

THE MEDICAL SCHOOLS AND THE NATION'S HEALTH*

By James Young, D.S.O., M.D., F.R.C.S. Edin., F.C.O.G.

GYNÆCOLOGIST TO THE ROYAL INFIRMARY, AND PHYSICIAN TO THE ROYAL MATERNITY HOSPITAL EDINBURGH

(*Concluded from p. 63*)

The Doctor and the Public

Enough has been said, as I believe, to prove that by the necessities of their development the medical schools have acquired an organisation equipped for the study of disease but ill-devised for the study of health. It is not easy to see how on a tree of such sturdy growth we can engraft a stem of such different lineage. And yet, if we are to take our part as a creative force in the crusade for health, it is clear that this can be done only by some fundamental breach with the past. A complete readjustment of outlook and a profound change in our method are called for. We must be satisfied with no ambition short of one which aims at capturing for our schools and our profession a rôle that is creative and charged with leadership. In the machine of public health the medical profession through its health officers has fulfilled and is fulfilling an important task as policeman, but in the new outlook we must envisage a function of deeper and fuller responsibility.

The apathy of organised medicine towards the positive value of health ideals is a matter of frequent public comment and it has been instrumental in creating a certain estrangement between the laity and the profession, which has been increasingly evident during the past generation. The spread of education, the increased interest being taken in personal and public hygiene, and the opportunities now presented to large numbers of the non-medical public through the health activities of the local authorities to identify themselves with recent progressive movements have all contributed to an increasing appreciation by the community of the extent to which this inertia exists in medical corporations and in medical circles generally. We have quoted instances showing how the lack of the energetic participation of the profession in matters particularly within its concern has resulted in the community being compelled to assume for itself the function of leadership, for example, in regard to the protection of child and maternal life. The same is true of many other health matters. Indeed, to the student of present-day life one of the most remarkable things is this spontaneous and rapid spread of health ambitions and ideals in the nation and the manifold shapes these assume.

In passing we should perhaps point out that the change in the attitude of the public towards the profession has had additional causes. Amongst these probably one of the most significant arises from the fact that the general enlightenment of the public in matters relating to health has brought with it a dawning realisation of the fallibility of the doctor. This is a common topic for raillery in modern literature in which the profession has become a favourite butt of the dramatist and the novelist.

In self-defence we may plead that this affection of omniscience by the medical man has never been truly of his own creation, except in so far as he has allowed himself too rigidly to submit to the convention that it is improper for the doctor to take the public into his confidence through the medium of the press or the platform. The intention underlying this injunction is sound; yet it has undoubtedly contributed to the creation of misunderstanding and it has hindered that identification of the profession with public sentiment and effort that would have been for its good. Further, the peculiar and special nature of our knowledge has tended to make it recondite to the uninitiated; indeed the very language of medicine is in itself a deterrent to a free interchange of ideas as any of us knows who has tried to explain the circumstances of an illness to the friends of the sufferer.

There is another consideration which in the opinion of some has seriously damaged the profession in the eyes of the public and which we cannot afford to overlook. This is the so-called commercialisation of medicine and, more particularly, the commercialisation of the specialties. I do not intend to enter into a discussion of the facts underlying this remarkable innovation in modern medicine for it is not directly germane to the subject of this address and allusion has already been made to it in reference to the circumstances surrounding the recent and rapid development of specialism. We may, however, point out that our so-called charity hospitals, although originally founded solely for the destitute sick, have grown to such an extent that they now serve roughly four-fifths of the community. Their clientèle is now drawn from social strata which are to a large extent economically independent and yet they continue to conduct their work under the old statutes with a medical staff serving on a charity basis. This necessarily implies that the large numbers of the specialists required for their manning, and who receive no payment for their services, must extract their living from the small and the gradually shrinking proportion of the population who remain outside. Viewed in this light the development which has given rise to so much criticism by the public and so much misgiving in the profession is entirely economic in its origin. At the same time it should be pointed out that the specialist services of the large hospitals possess a large number of young men who are necessary for the charity machine, which they serve gratuitously, and who are often living during the best period of their lives in circumstances of great privation. This they tolerate largely because of the consuming interest of the work and partly in the hope of better days to come. Viewed on the average it is probably correct to say that the specialties are the most poorly remunerated section of the profession. It may be argued that much of the gravity of the hospital problem has sprung from the indifference with which the medical profession has allowed itself to be exploited. This is true but in this respect it has been no more culpable than the charitable public at large. Whatever the facts there can be no doubt that the problem alike in its public and its medical aspects can be solved only by a complete revolution in the hospital policy of the country.

I have permitted myself this short digression through a desire to show that the attitude of the public towards the profession has had more than one source, to which we have to direct our attention if we are to rehabilitate ourselves in the life of the nation. It is, however, no exaggeration to say that of these none is so significant as the general lethargy of the doctor in matters of health as distinguished

* Abridged from the presidential address to the Edinburgh Obstetrical Society, delivered on Nov. 9th, 1932.

from his preoccupation with matters of disease. From this it has happened that there is being born in modern life much praiseworthy enterprise in health with which the doctor might have been identified to the advantage both of the nation and of himself, and largely in consequence of his failure to inspire and guide there have sprung into being movements of a quite different order in that, although often sincere in their ambitions and their claims, they are dangerous because they have allowed themselves to become dominated by obscurantism and prejudice.

Back to Hippocrates

What, then, must we do to assert ourselves and to take that place in the health affairs of the nation which belongs to us alike by prescription and by responsibility? We have seen that devotion to disease has blinded us to the duties of health. We have failed to realise that the school of health is as essential as the school of disease. We have professors of disease. We must have professors of health.

I think I could easily persuade you that we must have in the forefront of our crusade the great fact of nutrition. Indeed, we must urge that this should become a dominating concern of every medical school at the earliest possible moment. Our professor of nutrition will inspire the rising generations of doctors with their larger duties to the public. Within his purview will come the child before and after birth, the observance of boyhood and girlhood and the adult in his various activities of relaxation, industry, and old age. Fresh air and sunshine and exercise will be his concern. He will be interested in the diets of different nations and their relative advantages. He will from his position of authority fulminate against the national peril inherent in our present milk-supplies.

We shall have a professor of public welfare in addition to our professor of nutrition. His special study will be those other factors in the community which are concerned with the safeguarding of the health of the worker, housing, hours of labour, industrial fatigue, &c. At Edinburgh University we have a professor of animal breeding. It has been well said that we bring all the resources of science to bear on the breeding and feeding of our pigs and have forgotton our men. Our professor will have within his ambit the great facts of heredity as these concern the welfare of man.

It is obvious at the outset that our curricula as at present organised cannot find room for the big new demands which we make on the teaching bodies. To objections on this score we can represent that the time has arrived in the history of medical teaching when it is essential that the conceptions responsible for the creation and perpetuation of the present curriculum should be completely revised. The curriculum which squeezes out instruction in such a vital subject as midwifery because of lack of space and yet which includes botany has surely outgrown its period of usefulness. The truth is that, as is now generally conceded, the time is over-ripe for a recasting of our methods of teaching to bring them into line with modern needs. In our approach to this admittedly complex subject our first duty is not a cheeseparing policy of hours here and hours there, but a consideration of the fundamental principles which must guide us towards the creation of a system that is in harmony with modern progress and that will embody and inspire our ideals of future development. Of a surety where our fathers faltered in ignorance we shall fail in the clear light of knowledge if we do not bend all our energies towards infusing the new system with the vision of a great profession dedicated to the service of health.

After assuring ourselves that by such means we have brought the schools into relation with the significance of health as a positive ideal immediately within their concern, we shall have gained much in a reorientation of medical thought and endeavour. We shall have done much to commit organised medicine to the view that the safeguarding of national health is at least as much its responsibility as the palliation of individual disease. Medical conscience, in its broadened outlook, will come more and more to regard disease in its many incapacitating forms not so much as lesions of individual organs each with its own ætiology, but in the main as a symbol of wrong living expressible in terms of nutrition or environment. It will find itself becoming more and more concerned with large matters of economic and social welfare, such as the housing, the feeding, and the work of the people and less with the bottle of medicine and the advice felt to be futile before it is uttered.

The new outlook must break completely with the traditional attitude that health merely represents disease that is prevented, the negative conception which is often found to dominate the utterances of members of organised medicine and which finds expression in the term "preventive medicine" as this is usually understood. The new conception must carry with it a robust conviction of positive virtue. The exponents of disease in their attempts at preventive medicine seek backwards from the morbidly deranged organ for a causation which becomes often more and more elusive the more intensely the search is pursued. The exponents of health look ever forward with a knowledge that the more clearly the principles of health are perceived and the more efficiently they are practised the more does the organism become attuned as a whole to its environment and the more irrelevant does the consideration of any one organ become. So long as the body is healthy the health of its parts is assured. After many long centuries during which it has strayed from the path first clearly perceived by the father of medicine our school will again be dedicated to the great classic ideal of health. Turning back to recapture the spirit of its youth it will inspire a renaissance in the principles of healthy living. *Mens sana in corpore sano—Floreat res medica.*

INFANT LIFE PROTECTION

NEW PROCEDURE IN FORCE

THE coming into operation on Jan. 1st of Part V. of the Children and Young Persons Act, 1932, tightens up the Infant Life Protection provisions of the 1908 Act in many respects. The previous law against baby-farming made it necessary to notify the keeping of children under the age of 7 for reward; the age is now raised to 9. Formerly notice was required within a certain period after reception; now it must be given in advance. Change of address must also be notified in advance, and notice of the death or transfer of the child must be given not only to the local authority but also to the person from whom it was received for reward. The old law exempted the keeping of children for less than 48 hours; this exemption is now cancelled. The contents of the notice are slightly amplified and there is a somewhat wider definition of "undertaking for reward." The old law allowed a time limit of six months for prosecution for failure to notify. This period was interpreted as running from the first day of failure; naturally, as the omission was often not discovered in six months, many prosecutions broke down. In future failure to notify is a continuing offence;

thus the six-month period has a long run. The 1908 Act directed every Maternity and Child Welfare Authority to provide for the administration of the Act and, where children were kept for reward, to appoint Infant Protection Visitors. In future one of such Visitors must be a woman, and the Visitors are not only to satisfy themselves (and to give necessary advice and directions) as to the proper nursing and maintenance of the infants, but also as to their health and well-being. The 1908 Act allowed the Authority to limit the number of children under 7 years old kept in any one house. The new Act substitutes the power to fix the maximum number of children under 9 years old who may be kept in any dwelling where there is a notifiable child; in addition, the Authority may impose conditions to be complied with, so long as the number exceeds a specified maximum. Formerly children kept by unfit persons or in unfit premises could be removed on a justice's or a local authority's order. In future this will normally be done on a magisterial order obtained on complaint by a local authority. There is power to prevent the reception of a child as well as to remove it. This power operates not only in the former conditions (if the premises are overcrowded, insanitary, or dangerous) but also if the infant is to be received or kept "in an environment which is detrimental." The grounds of unfitness in the person who keeps a child for reward will include, in addition to negligence, ignorance, inebriety, immorality, and criminal conduct as before, old age, infirmity, and ill-health. There is a new prohibition of anonymous advertisements offering to take charge of children under nine. And there is a more exact statement of the hospitals, homes, and institutions exempt from the foregoing provisions. These exemptions are now limited to a hospital, convalescent home, or institution (*a*) maintained by a Government department, local authority, or any other authority or body constituted by a special Act or Charter; (*b*) exempted by certificate of the local authority; (*c*) voluntary homes supervised by the Home Office; and (*d*) institutions, houses, or homes certified or approved by the Board of Control under the Mental Deficiency Acts in which there are no children or no persons who are not mental defectives.

It will be appreciated that Part V. of the 1932 Act is merely that part with which the Minister of Health is mainly concerned. The other Parts of what is really a Home Office measure deal with juvenile courts, the trial of children, their criminal responsibility, and their commitment to the care of fit persons or to "approved schools," which will soon replace what we formerly knew as reformatory and industrial schools. There are also new provisions as to juvenile employment, the notification, inspection, and control of voluntary homes, probation, the non-association of juveniles with adults in police stations or criminal courts, and the suppression of young persons' names, addresses or schools, or their pictures or other particulars of identity, where they are concerned in proceedings in court or as witnesses. Most of these provisions are not yet in force.

THE K.D. AIR DRYER

THIS preparation is designed to remove moisture from the normal air. The crystals are supplied in a metal box with a perforated lid which has a central glass window through which the crystals can be seen. Normally the crystals are dark blue in colour, but when they become charged with moisture, so that they will absorb no further water from the air, they turn pinkish. The air dryer should then be heated in a moderate oven for one and a half hours, when the crystals will recover their original dark blue colour, and be ready for further use in wardrobes, linen cupboards, and other receptacles where rust and mould may do harm in the presence of a moist atmosphere. The invention is put upon the market by Elmesan (London), Ltd., 66, Victoria-street, S.W.

THE PATIENT'S POINT OF VIEW

IN his latest commentary on yesterday, to-day, and to-morrow,[1] Mr. Stephen Leacock does not spare the medical profession. In the old days, he remarks, the doctor never talked medicine to the patient. Sometimes he suspected serious illness, but he never said so until recovery was complete; and though the therapeutic methods of those unscientific times may have been limited the practice of medicine was human, gracious, and kindly. "To-day," he says, "it is replaced by 'machine medicine' with the mechanical test, the scientific diagnosis, the hospital, the X ray. All this is marvellous. But no one has yet combined it with the Art of Healing."

The patient of to-day, Mr. Leacock thinks, is regarded by the profession merely as a contraption.

"The Contraption sits huddled up in its serge suit in a consultation office chair. Its locomotive apparatus is doubled up beneath it, folded at the joints. The thing is anxious, but the doctor doesn't know that. The poor Contraption is consumed with something like panic that is gripping it by the feed-pipe. But it makes as brave a show as it can."

The doctor makes a running commentary on his investigations. "I don't know that I quite like that heart" . . . and "there are symptoms there that I don't like—don't like at all." (Neither does the Contraption, but he keeps quiet.) After further audible reflections on possibilities and probabilities he begins to write on little bits of paper. "Well," he observes, in cheering tones, "we'll try it out anyway."

"And above all," concludes the doctor with a sudden burst of geniality that he had forgotten to use sooner, "don't worry. You may blow up at any time, but don't let that worry you. You may fall dead in a taxi, but I'm not alarmed if you do. Come back in a week and I'll show you the X ray plates. Good-bye."

After a week—168 hours, or 1080 minutes, or 64,800 seconds—the patient comes back to find his adviser beaming with interest. There is a misty-looking spot in the radiogram of the brain.

"What is it?" asks the Contraption.

"I don't know yet," the doctor says, "it's a little early to say. But we'll watch it. If you don't mind, I think we'll probably open your head and take a look. They are doing some wonderful things now in the removal of the brain. It's rather a nice operation, but I think I may take the risk. I'll let you know. Meantime you're following out our instructions, I hope—not eating anything?"

"Oh no."

"And nothing to drink or smoke?"

"Oa no."

"That's right. Well, now, in a day or two we'll know more. I'll have your blood by that time and the sections of your heart and then I think we'll begin to see where we are. Good-bye."

To learn the end of this illuminating story, readers will do well to consult Mr. Leacock's book.

A DIRECTORY OF MASSAGE

WE have received a Directory (dated August, 1932) of the Private Practitioners' Association, which is made up of members of the Chartered Society of Massage and Medical Gymnastics who are in private practice. Every entry in the Directory is of one who has qualified in massage and is registered with the C.S.M.M.G., while he may hold additional qualifications from this society, indicated by the appropriate letter, or the diploma of biophysical assistant from the Society of Apothecaries. A number of members are blind ex-Service men, trained at St. Dunstan's. It is also stated whether the member is willing to undertake National Health cases. The Directory is now arranged on an alphabetical basis of towns which makes it easy of reference. A copy will be sent post free to any medical practitioner on application to the hon. secretary of the Association, Mr. J. Stewart Brown, Hygeia, Falmouth.

[1] Afternoons in Utopia. By Stephen Leacock. London: John Lane, the Bodley Head, Ltd. 1932. Pp. 240.

SIGHT-SAVING CLASSES

THE provision of instruction for partially blind children was the main topic discussed at the annual meeting of the International Association for the Prevention of Blindness, held in Paris last month. The organisation of sight-saving classes and schools in England, America, and Germany was outlined; representatives of Switzerland and France, though they were able to record the existence of schools respectively in Zurich and Basle, and in Strasbourg and Paris, emphasised the need for multiplying classes in other towns in their countries. It was agreed that the special educational methods used in sight-saving classes produce results far superior to those which follow the attendance of partially blind children at ordinary schools.

THE WELSH NATIONAL SCHOOL OF MEDICINE

THE stability of the Welsh National School of Medicine between the conflicting claims for its government has long seemed so uncertain that we welcome the confirmation of its present assured position in its first annual report. The compromise arrived at, which was embodied in a charter issued on July 1st, 1931, is that the school is recognised as a separate institution in the Federal University of Wales, and provides instruction in the clinical years of the curriculum. The preliminary sciences (first year) are taught in all four colleges of the university; most of the students, however, study these at the University College of South Wales and Monmouthshire at Cardiff. Second and third year subjects—anatomy, physiology, and organic chemistry—are taught only at this college. The medical students studying at Cardiff during their preclinical years work under the control of a joint academic committee of the college and school, over which committee the provost of the school presides. The entry of first year medical students has increased during the last four years from 28 in the session 1928–29 to 72 in the session 1931–32. It is noted that the resources of the preliminary science department together with those of anatomy and physiology are becoming insufficient to cope with the increased numbers, and unless these resources can be extended limitation of entry will be unavoidable. A valuable addition to the clinical material available for teaching has been the provision of 70 medical beds at the City Lodge Hospital of the Cardiff Corporation.

THE BREATH OF LIFE

WE have been asked to review a little book with this title which can be obtained for 1*s.* 6*d.* through Messrs. Simpkin Marshall; it is written by Arthur Lovell, who, we learn, is the author of, among other works, "Volo or the Will" and "Ars Vivendi," and the inventor of a new method of breathing of which he says, "Physically it is the key to health," "Mentally it is the royal road to learning," and "Spiritually it promotes character, self-confidence, and aspiration for good." The inventor seems to have acquired, whether by reformed or deformed breathing, a certain measure of self-confidence. It may be that the medical profession exhibit astonishing ignorance on the subject of breathing and that "Mr. Emil Behake" (whoever he may be) has been equally reprehensible; but we cannot subscribe to the view that the diaphragm is "the real core of vitality," nor advise the expenditure of 1*s.* 6*d.* on the book.

Vacancies

For further information refer to the advertisement columns

All Saints' Hospital for Genito-Urinary Diseases, Southwark, S.E. Clin. Asst.

Birmingham Maternity Hospital.—Hon. Obstet. S. Also Res. M.O. and Reg. £200.

Bradford Royal Eye and Ear Hospital.—Jun. H.S. £150.

Bradford Royal Infirmary.—Three H.S.'s. Each at rate of £135.

Brighton, Royal Alexandra Hospital for Sick Children.—H.S. £100.

Bristol, Southmead Hospital.—Res. Obstetric Officer. At rate of £200.

Bury Infirmary, Lancs.—Sen. H.S. At rate of £200.

Bury St. Edmund's, West Suffolk County Council.—Asst. County M.O. and Asst. School M.O. £500.

Canterbury Borough Mental Hospital.—Asst. M.O. £350.

Cardiff Royal Infirmary.—H.P. and H.S.'s. At rate of £50. Also H.S. to Ophth. Dept. At rate of £100.

Carlisle, Cumberland Infirmary.—Hon. Asst. Phys

Charing Cross Hospital, W.C.—Asst. Surgeon.

City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—H.P. At rate of £100. Also Registrar.

Colchester, Essex County Hospital.—H.S. £175.

Denbigh, North Wales Sanatorium, Llangwfan.—Jun. Asst. Res. M.O. £250.

Derbyshire Education Committee.—Asst. School M.O. £500.

Dorchester, Dorset County Hospital.—H.S. At rate of £160.

Ealing Borough, Maternity and Child Welfare Services.—Second Asst. M.O. £600.

Eastbourne, Princess Alice Memorial Hospital.—H.S. At rate of £150.

Evelina Hospital for Sick Children, Southwark, S.E.—H.P. At rate of £120.

Exeter, Royal Devon and Exeter Hospital.—H.S. Also H.P. Each at rate of £150.

Hampstead General and N.W. London Hospital, Haverstock-hill, N.W.—H.P. At rate of £100.

Ipswich, East Suffolk and Ipswich Hospital.—H.S. £120.

King Edward Memorial Hospital, Ealing.—Jun. Res. M.O. £150.

Leeds Hospital for Women.—H.S. At rate of £100.

Leicester Royal Infirmary.—Surgical Dresser. 10*s.* 6*d.* weekly.

Lewisham Hospital, High-street, S.E.—H.P. At rate of £80.

Liverpool, City Infectious Diseases Hospitals.—Asst. Res. M.O. £200.

London Hospital, E.—Asst. Physician.

London Jewish Hospital, Stepney Green, E.—Second Radiologist.

Manchester, St. Mary's Hospitals.—Res. Obstet. O. for Whitworth-street West Hospital. £175. Also Three H.S.'s to Special Depts. Each at rate of £50.

Margate and District General Hospital.—Res. M.O. £150.

Middlesex County Council.—Ophth. S. £2 12*s.* 6*d.* per session.

Newark General Hospital.—Res. H.S. £175.

Newcastle-upon-Tyne, City and County of.—Asst. M.O.H. £750.

Preston and County of Lancaster Royal Infirmary.—Cas. O. At rate of £150.

Preston, Lancashire Mental Deficiency Acts Committee.—Asst. M.O. £600.

Putney Hospital, Lower Common, S.W.—Surgeon.

Rotherham Hospital.—H.P. £180.

St. John's Hospital, Lewisham, S.E.—Hon. Skin Physician. Also Res. H.P. and Cas. O. Each at rate of £100.

Salford, Hope Hospital, Pendleton.—Asst. Res. M.O. At rate of £250.

Shrewsbury, Eye, Ear and Throat Hospital.—H.S. £225.

Stoke-on-Trent, Longton Hospital.—H.S. £160.

Taunton and Somerset Hospital.—H.P. £100.

Tilbury Hospital, Essex.—H.S. £140.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Hon. Surg. Reg., H.P., and H.S. Each at rate of £100. Also Out-patient Anæsthetist. 10*s.* 6*d.* per attendance.

West End Hospital for Nervous Diseases, Gloucester-gate, N.W.—Sen. and Jun. H.P.'s. At rate of £150 and £100 respectively.

West London Hospital, Hammersmith, W.—Cas. O. At rate of £250. Also Asst. Gynæcologist.

Western Ophthalmic Hospital, Marylebone-road, N.W.—Hon. Anæsthetist. One guinea a visit.

The Home Secretary is considering the appointment of Medical Referees under the Workmen's Compensation Act, 1925, for the following circuits:—Burnley, Colne and Nelson, Todmorden County Court Districts, Ashton-under-Lyne and Stalybridge District (No. 10); Bury and Rochdale County Court Districts (No. 5); Okehampton County Court District (No. 57); Tavistock District (No. 59); Falmouth and Truro, Helston, Newquay, Penzance, Redruth, and St. Austell County Court Districts (No. 59); Basingstoke, Farnham and Aldershot County Court Districts (No. 51); Birmingham County Court Districts (No. 21); Bromsgrove, Bromyard, Kidderminster, Stourbridge, Tenbury, and Worcester County Court Districts (No. 22); Redditch County Court Districts (No. 53). Medical Referees for cases of industrial disease other than ophthalmic cases and cases of beat hand, beat knee, or beat elbow: Accrington, Blackburn and Clitheroe, Blackpool, Chorley, Lancaster, Preston (No. 4); Bolton, Bury, Rochdale, Oldham, Salford, (No. 5); Leigh, Manchester (No. 8); Appleby, Brampton, Carlisle, Haltwhistle and Alston, Keswick, Penrith, Wigton, Barrow-in-Furness and Ulverston, Kendal, Kirkby Lonsdale, Windermere, Whitehaven and Millom, Workington and Cockermouth (No. 3). Applications for the posts should be addressed to the Private Secretary, Home Office Whitehall, London, S.W.1, and should reach him not later than 28th Jan., 1933.

The Home Secretary is also considering the appointment of a Physician as Medical Referee under the Workmen's Compensation Act, for the Liverpool County Court District (Circuit No. 6). Applications from Physicians for the post should be addressed to the Private Secretary, Home Office, and should reach him not later than Jan. 28th.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Rothes (Moray), and Northampton (Northampton).